

# MISSOURI SPECIES AND COMMUNITIES\* OF CONSERVATION CONCERN



## *Checklist*



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Coldwater crayfish

## JANUARY 2012

\* Terrestrial Natural Communities. Does not include aquatic, geologic or cave communities.

SCI077

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**NOTICE:** Please submit reports of all sightings of species and natural communities listed in this checklist on the forms provided in the back of this checklist. Special criteria apply to birds and reports should follow the guidelines listed in Appendix A.

## INTRODUCTION

The Department of Conservation is charged with the protection and management of Missouri's fish, forest, and wildlife resources. In the brief time since the settlement of Missouri, many plants and animals have declined to levels of concern and some have disappeared entirely. The species cataloged in this checklist represent 18 percent of the native vascular plants, 14 percent of the nonvascular plants and 28 percent of the vertebrate animals in Missouri. Together, the animals, plants, and natural communities represent Missouri's biological diversity—a heritage worth protecting.

The Department maintains two references relating to the status of listed plants and animals in Missouri; the *Missouri Species and Communities of Conservation Concern Checklist* and the *Wildlife Code of Missouri*. The *Missouri Species and Communities of Conservation Concern Checklist* is utilized mostly for planning and communication purposes; however, **native invertebrate species listed herein have legal protection under the Wildlife Code. These native invertebrates may only be collected and held by holders of a Wildlife Collector's Permit as described in Rule 3CSR10-9.110(1)(B).** All species in the State of Missouri are protected as biological diversity elements unless a method of legal harvest or take is described in the *Wildlife Code*. Species listed in the *Wildlife Code* under 3CSR10-4.111 are protected by the State Endangered Species Law 252.240. Some of the plants and animals in the checklist also appear in the *Wildlife Code* and are afforded special legal protection. All federally endangered and threatened plants and animals are protected by the Endangered Species Act of 1973 (ESA) and by Missouri State Endangered Species Law.

### How to use the checklist

The checklist, developed with the cooperation of specialists throughout the state, is a list of plants, animals, and natural communities the Department of Conservation is particularly concerned about due to population declines or apparent vulnerability. The state rank (SRANK) shows the level of concern for each element's continued existence in Missouri. For each Element (i.e., species, subspecies or variety, or natural community type), at least 6 basic factors are considered when assigning an SRANK:

- the estimated number of Element Occurrences (EOs) throughout the Element's state range
- the estimated state abundance of the Element (measured by population, area, or stream length)
- the estimated size of the Element's state range
- the trend in the Element's distribution over its state range
- the estimated number of adequately protected EOs throughout the Element's state range
- the degree to which the Element is threatened in the state

The checklist also indicates, for each lichen, plant, and animal Element, information on the Element's global rank (i.e., its relative rarity or endangerment in the world). This is useful for understanding the relative rarity or endangerment of an Element from a global perspective, i.e., beyond state, national, or regional boundaries. Global ranks (i.e., GRANKS), are completed by the Heritage/Conservation Data Center personnel and/or NatureServe. For each Element, the same six factors listed above for SRANKS are considered when assigning GRANKS, but in a global context. Additionally, the fragility or susceptibility of the Element to intrusion or disturbance is considered when assigning a global rank.

The Global and State Ranking System methodology was developed and provided by The Nature Conservancy, Conservation Science Division, in association with the Network of Natural Heritage Programs and Conservation Data Centers. NatureServe 2005. NatureServe Central Databases. Arlington, Virginia. U.S.A.

The checklist is arranged by broad taxonomic groups (e.g., terrestrial natural communities, flowering plants, insects, fish, and mammals). Within each group, species are arranged alphabetically by their scientific names and terrestrial natural communities by community type. Each Element is identified by its scientific name, common name, federal status, state status, global rank, and state rank.

## TERMS AND DEFINITIONS

### **FEDERAL STATUS**

The federal status is derived from the provisions of the Endangered Species Act of 1973, as amended, which is administered by the U.S. Fish and Wildlife Service. Passage of the Endangered Species Act of 1973 gave the United States one of the most far-reaching laws ever enacted by any country to prevent the extinction of imperiled animals and plants. Protecting endangered and threatened species and restoring them to the point where their existence is no longer jeopardized is the primary objective of the Fish and Wildlife Service's Endangered Species Program.

**E: Endangered:** Any species which is in danger of extinction throughout all or a significant portion of its range.

**T: Threatened:** Any species which is likely to become endangered within the foreseeable future.

**C: Candidate:** Plants or animals which the Service is reviewing for possible addition to the list of endangered and threatened species.

**PE: Proposed Endangered:** Species officially proposed for listing as endangered; final ruling not yet made.

**PT: Proposed Threatened:** Species officially proposed for listing as threatened; final ruling not yet made.

**SAT: Threatened due to similarity of appearance:** Species is listed for its protection due to similarity of appearance with another listed species. Species listed as SAT are not biologically threatened.

### **STATE STATUS**

Rule 3CSR10-4.111 of the *Wildlife Code of Missouri* and certain state statutes apply to state *Code* listed species.

**E: Endangered:** Determined by the Department of Conservation under constitutional authority.

### **GLOBAL RANK**

A numeric rank (G1 through G5) of relative endangerment based primarily on the number of occurrences of the Element (i.e., species, subspecies, or variety) globally. Other factors in addition to the number of occurrences are considered when assigning a rank, so the numbers of occurrences suggested for each numeric rank below are not absolute guidelines.

**G1: Critically Imperiled:** Critically imperiled globally because of extreme rarity or because of some factor(s) making it especially vulnerable to extinction. Typically 5 or fewer occurrences or very few remaining individuals (<1,000) or acres (<2000) or linear miles.

**G2: Imperiled:** Imperiled globally because of rarity or because of some factor(s) making it very vulnerable to extinction or elimination. Typically 6 to 20 occurrences or few remaining individuals (1,000 to 3,000) or acres (2,000 to 10,000) or linear miles (10 to 50).

### **GLOBAL RANK (Cont.)**

**G3: Vulnerable:** Vulnerable globally either because very rare and local throughout its range, found only in a restricted range (even if abundant at some locations), or because of other factors making it vulnerable to extinction or elimination. Typically 21 to 100 occurrences or between 3,000 and 10,000 individuals.

**G4: Apparently Secure:** Uncommon but not rare (although it may be rare in parts of its range, particularly on the periphery), and usually widespread. Apparently not vulnerable in most of its range, but possibly cause for long-term concern. Typically more than 100 occurrences and more than 10,000 individuals.

**G5: Secure:** Common; widespread and abundant (although it may be rare in parts of its range, particularly on the periphery). Not vulnerable in most of its range. Typically with considerably more than 100 occurrences and more than 10,000 individuals.

**G#G#: Range Rank:** A numeric range rank (e.g., G2G3) is used to indicate uncertainty about the exact status of a taxon. Ranges cannot skip more than one rank (e.g., GU should be used rather than G1G4).

**GNR: Not Ranked:** Status has not been assessed.

**GU: Unrankable:** Currently unrankable due to lack of information or due to substantially conflicting information about status or trends. Note: Whenever possible, the most likely rank is assigned and the question mark qualifier is added (e.g., G2?) to express uncertainty, or a range rank (e.g., G2G3) is used to delineate the limits (range) of uncertainty.

**GH: Possibly Extinct/Extirpated:** Known from only historical occurrences, but may nevertheless still be extant; further searching needed.

**GX: Presumed Extinct:** Believed to be extinct throughout its range. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.

### **SUBRANK:**

**T: Taxonomic Subdivision:** Rank applies to a subspecies or variety.

### **QUALIFIERS:**

**?: Inexact Numeric Rank:** Denotes inexact numeric rank. (The ? is not used in combination with range ranks.)

**Q: Questionable Taxonomy:** Distinctiveness of this entity as a taxon or community at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, inclusion of this taxon in another taxon, or inclusion of this community within another community, with the resulting Element having a lower-priority (numerically higher) conservation status rank.

## **STATE RANK**

A numeric rank (S1 through S5) of relative endangerment based primarily on the number of occurrences of the Element (i.e., species, subspecies, or variety) within the state. Other factors considered when assigning a rank include: abundance, population trends, distribution, number of protected sites, degree of threat, suitable habitat trends, level of survey effort and life history. Thus, the number of occurrences suggested for each numeric rank below are not absolute guidelines. Missouri species of conservation concern typically do not fall within the range of S4-S5.

**S1: Critically Imperiled:** Critically imperiled in the nation or state because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from the state. Typically 5 or fewer occurrences or very few remaining individuals (<1,000).

**S2: Imperiled:** Imperiled in the nation or state because of rarity or because of some factor(s) making it very vulnerable to extirpation from the nation or state (1,000 to 3,000). Typically 6 to 20 occurrences or few remaining individuals (1,000 to 3,000).

**S3: Vulnerable:** Vulnerable in the nation or state either because rare and uncommon, or found only in a restricted range (even if abundant at some locations), or because of other factors making it vulnerable to extirpation. Typically 21 to 100 occurrences or between 3,000 and 10,000 individuals.

**S4: Apparently Secure:** Uncommon but not rare, and usually widespread in the nation or state. Possibly of long-term concern. Usually more than 100 occurrences and more than 10,000 individuals.

**S5: Secure:** Common, widespread, and abundant in the nation or state. Essentially ineradicable under present conditions. Typically with considerably more than 100 occurrences and more than 10,000 individuals.

**S#S#:** **Range Rank:** A numeric range rank (e.g., S2S3) is used to indicate the range of uncertainty about the exact status of the Element. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

**S?: Unranked:** Species is not yet ranked in the state.

**SU: Unrankable:** Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

**SE: Exotic:** An exotic established in the state; may be native in nearby regions (e.g., house finch or catalpa in eastern U.S.)

**SA: Accidental/Nonregular:** Accidental or casual in the state (i.e., infrequent and outside usual range).

**SP: Potential:** Potentially occurring in the state but no occurrences reported.

**SR: Reported:** Element reported in the state but without persuasive documentation which would provide a basis for either accepting or rejecting (e.g., misidentified specimen) the report.

**SRF: Reported Falsely:** Element erroneously reported in the state and the error has persisted in the literature.

**STATE RANK (Cont.)**

**SH: Historical:** Element occurred historically in the state, with expectation that it may be rediscovered. May not have been verified in the past 20 years and suspected to be still extant.

**SX: Extirpated:** Element is believed to be extirpated from the state.

**QUALIFIERS:**

**?: Inexact or Uncertain:** Denotes inexact or uncertain numeric rank. (The ? qualifies the character immediately preceding it in the SRANK. The ? is not used in combination with range ranks.)



## SPECIES CHANGES

### STATUS CHANGES

#### PLANTS

*Quercus stellata* var. *margaretta* (Sand Post Oak) is changed to *Q. margarettiae* with an SRANK of SRF. This taxon is now considered a species rather than a variety and with a slightly different spelling. The SRANK was changed from SH to SRF because specimens housed at the Missouri Botanical Garden were re-determined to be *Quercus stellata*.

#### INSECTS

*Pardalophora saussurei* (A Glade Grasshopper) from S3 to SU based on the single 1982 record (D. Bergmann); the species has not been found in Missouri since then.

#### FISH

*Lepomis marginatus* (Dollar Sunfish) from SU to S2 due to increased documentation of species occurrence.

#### AMPHIBIANS

*Cryptobranchus alleganiensis bishopi* (Ozark Hellbender) from federal Proposed Endangered to federal Endangered. Federal listing was warranted for this species due to information provided on the decline and threats.

#### BIRDS

*Anhinga anhinga* (Anhinga) from SX to SU due to recent nesting records, as reported by the Missouri Bird Records Committee, in southeastern Missouri.

*Dendroica pensylvanica* (Chestnut-sided Warbler) from S3 to SU, due to a lack of breeding records in recent years.

#### MAMMALS

*Cervus elaphus* (Elk or Wapiti) from SX to S? based on a 2011 reintroduction of 34 elk in Carter County, and a small group of elk reported in Taney county (origins unknown).

### ADDITIONS

#### PLANTS

*Calopogon oklahomensis* (Grass Pink Orchid) as SU. USFW is currently reviewing a proposal to include *C. oklahomensis* on the Endangered Species List. More information on its distribution and occurrence is needed.

*Calypogeia muelleriana* var. *muelleriana* (A Liverwort) as SU. This species was formerly overlooked but recently found by John Atwood and Nels Holmberg in Ste. Genevieve county surveys.

*Cephalozia connivens* (A Liverwort) as SU. This species was formerly overlooked but recently found by John Atwood and Nels Holmberg in Ste. Genevieve county surveys.

*Lophozia incisa* (A Liverwort) as SU. This species was recently discovered in Missouri by John Atwood in Ste. Genevieve county.

## **ADDITIONS (Cont.)**

### **BIRDS**

*Athene cunicularia* (Burrowing Owl) as SX due to historical nesting records in Missouri.

*Dendroica virens* (Black-throated Green Warbler) as SU, a new state record found in Reynolds county by Michael Nicosia and Megan Blair.

*Spinus pinus* (Pine Siskin) as SU. Sporadic nesting records throughout the state.

## **DELETIONS**

### **FISH**

*Hiodon tergisus* (Mooneye) from S3 to S5 due to increasing abundance and widespread distribution.

*Macrhybopsis meeki* (Sicklefin Chub) from S3 to S5 due to increasing abundance in the Missouri River system of Missouri.

*Macrhybopsis storeriana* (Silver Chub) from S3 to S5 due to increasing occurrence.

### **BIRDS**

*Ectopistes migratorius* (Passenger Pigeon). This species is extinct. Historical records are reported in Missouri.

*Conuropsis carolinensis* (Carolina Parakeet). This species is extinct. Historical records are reported in Missouri.

## **TAXONOMIC CHANGES**

### **PLANTS**

*Quercus stellata* var. *margaretta* (Sand Post Oak) is changed to *Q. margarettiae* with an SRANK of SRF. This taxon is now considered a species rather than a variety and with a slightly different spelling. The SRANK was changed from SH to SRF because specimens housed at the Missouri Botanical Garden were re-determined to be *Quercus stellata*.

### **BIRDS**

*Aimophila aestivalis* to *Peucaea aestivalis* (Bachman's Sparrow).

### **MAMMALS**

*Cervus canadensis* to *Cervus elaphus* (Elk or Wapiti).

*Spermophilus franklinii* to *Poliocitellus franklinii* (Franklin's Ground Squirrel).

*Spermophilus tridecemlineatus* to *Ictidomys tridecemlineatus* (Thirteen-lined Ground Squirrel).

## TERRESTRIAL NATURAL COMMUNITIES

In addition to lichens, plants, and animals, the Missouri Natural Heritage Program tracks occurrences of high quality natural communities. Terrestrial natural communities are interrelated assemblages of plants, animals, and other living organisms incorporated into their physical surroundings- including geologic substrate, soils, topography and aspect- that are shaped by climate and other natural processes. High quality sites are ones that provide diverse assemblages of native species and represent the least distressed examples of ecosystems that existed in Missouri prior to European settlement. These natural communities frequently provide the habitat necessary for Missouri's listed lichens, plants, and animals. Because the Missouri Department of Conservation tracks occurrences of high quality natural communities, we encourage the submission of site information on natural communities as we do for species listed in this Checklist.

State ranks are assigned to natural communities using criteria that are similar to species SRANKs. (Criteria include total number of occurrences, number of occurrences by grade [A-D], total acres, number of counties in which the community type occurs, number of protected occurrences, and threats.) Global ranks are not applied to communities due to the difficulty in reconciling Missouri's classification system with larger scale classifications.

Natural community types have been classified using The Terrestrial Natural Communities of Missouri (Nelson, 2005). This classification system was developed to accomplish an inventory of the state's natural communities, prioritized by quality, size and distribution, to help meet land protection goals. The Terrestrial Natural Communities tracked in Heritage (high-quality examples) are listed below with their SRANKs by major community type.

### **COMMUNITY TYPE**

#### **FOREST**

#### **SRANK**

|                                     |           |
|-------------------------------------|-----------|
| Dry-Mesic Loess/Glacial Till Forest | S3        |
| Mesic Loess/Glacial Till Forest     | S3        |
| Dry-Mesic Limestone/Dolomite Forest | S3        |
| Mesic Limestone/Dolomite Forest     | S3        |
| Dry-Mesic Chert Forest              | S4        |
| Dry-Mesic Sandstone Forest          | S3        |
| Mesic Sandstone Forest              | S2        |
| Dry-Mesic Sand Forest               | S1        |
| Mesic Sand Forest                   | S1        |
| Dry-Mesic Igneous Forest            | S4        |
| Dry-Mesic Bottomland Forest         | S3        |
| Mesic Bottomland Forest             | S2        |
| Wet-Mesic Bottomland Forest         | S2        |
| Wet Bottomland Forest               | S3        |
| Riverfront Forest                   | S4        |
| <b>Total Forest Types:</b>          | <b>15</b> |

| <b>WOODLAND</b>                       | <b><u>SRANK</u></b> |
|---------------------------------------|---------------------|
| Dry Loess/Glacial Till Woodland       | S3                  |
| Dry-Mesic Loess/Glacial Till Woodland | S3                  |
| Dry Limestone/Dolomite Woodland       | S3                  |
| Dry-Mesic Limestone/Dolomite Woodland | S3                  |
| Dry Chert Woodland                    | S4                  |
| Dry-Mesic Chert Woodland              | S4                  |
| Dry Sandstone Woodland                | S3                  |
| Dry-Mesic Sandstone Woodland          | S3                  |
| Dry Sand Woodland                     | S1                  |
| Dry-Mesic Sand Woodland               | S2                  |
| Dry Igneous Woodland                  | S4                  |
| Dry-Mesic Igneous Woodland            | S4                  |
| Upland Flatwoods                      | S2                  |
| Bottomland Flatwoods                  | S1                  |
| Sinkhole Flatwoods                    | S2                  |
| Dry-Mesic Bottomland Woodland         | S2                  |
| Mesic Bottomland Woodland             | SH                  |
| Wet-Mesic Bottomland Woodland         | S1                  |
| <b>Total Woodland Types:</b>          | <b>18</b>           |

| <b>SAVANNA</b>                       | <b><u>SRANK</u></b> |
|--------------------------------------|---------------------|
| Dry-Mesic Loess/Glacial Till Savanna | S1                  |
| Mesic Loess/Glacial Till Savanna     | SH                  |
| Limestone/Dolomite Savanna           | SH                  |
| Chert Savanna                        | SH                  |
| Sandstone/Shale Savanna              | SH                  |
| Sand Savanna                         | S1                  |
| <b>Total Savanna Types:</b>          | <b>6</b>            |

| <b>PRAIRIE</b>                       | <b><u>SRANK</u></b> |
|--------------------------------------|---------------------|
| Dry Loess/Glacial Till Prairie       | S2                  |
| Dry-Mesic Loess/Glacial Till Prairie | S1                  |
| Mesic Loess/Glacial Till Prairie     | S1                  |
| Dry Limestone/Dolomite Prairie       | S2                  |
| Dry-Mesic Limestone/Dolomite Prairie | S2                  |
| Dry-Mesic Chert Prairie              | S3                  |
| Dry-Mesic Sandstone/Shale Prairie    | S3                  |
| Sand Prairie                         | S1                  |
| Prairie Swale                        | S2                  |
| Hardpan Prairie                      | S2                  |
| Wet-Mesic Bottomland Prairie         | S1                  |
| Wet Bottomland Prairie               | S1                  |
| <b>Total Prairie Types:</b>          | <b>12</b>           |

| <b>GLADE</b>              | <b><u>SRANK</u></b> |
|---------------------------|---------------------|
| Limestone Glade           | S2                  |
| Dolomite Glade            | S3                  |
| Chert Glade               | S2                  |
| Sandstone Glade           | S2                  |
| Igneous Glade             | S3                  |
| <b>Total Glade Types:</b> | <b>5</b>            |

| <b>CLIFF/TALUS</b>              | <b><u>SRANK</u></b> |
|---------------------------------|---------------------|
| Dry Limestone/Dolomite Cliff    | S5                  |
| Moist Limestone/Dolomite Cliff  | S4                  |
| Dry Sandstone Cliff             | S4                  |
| Moist Sandstone Cliff           | S3                  |
| Dry Chert Cliff                 | S3                  |
| Moist Chert Cliff               | S2                  |
| Dry Igneous Cliff               | S4                  |
| Moist Igneous Cliff             | S4                  |
| Unconsolidated Bluff            | S3                  |
| Limestone/Dolomite Talus        | S4                  |
| Igneous Talus                   | S4                  |
| <b>Total Cliff/Talus Types:</b> | <b>11</b>           |

| <b>STREAM EDGE</b>              | <b><u>SRANK</u></b> |
|---------------------------------|---------------------|
| Sand Bar                        | S3                  |
| Gravel Wash                     | S3                  |
| Stream Bank/River Bank          | S2                  |
| <b>Total Stream Edge Types:</b> | <b>3</b>            |

| <b>WETLAND</b>              | <b><u>SRANK</u></b> |
|-----------------------------|---------------------|
| Marsh                       | S2                  |
| Shrub Swamp                 | S2                  |
| Swamp                       | S1                  |
| Pond Marsh                  | S1                  |
| Pond Shrub Swamp            | S2                  |
| Pond Swamp                  | S1                  |
| Ozark Fen                   | S2                  |
| Prairie Fen                 | S2                  |
| Forested Fen                | S2                  |
| Glacial Fen                 | S1                  |
| Acid Seep                   | S2                  |
| Saline Seep                 | S1                  |
| Limestone/Dolomite Spring   | S3                  |
| <b>Total Wetland Types:</b> | <b>13</b>           |

| <b>CAVE</b>                                   | <b><u>SRANK</u></b> |
|---|---------------------|
| Cave  | S4                  |
| Cave Spring                                   | S4                  |
| Spring  | S4                  |
| <b>Total Cave Types:</b>                      | <b>3</b>            |
| <b>Total Terrestrial Natural Communities:</b> | <b>86</b>           |

## THREATENED AND ENDANGERED SPECIES IN MISSOURI

| <u>SCIENTIFIC NAME</u>                 | <u>COMMON NAME</u>                     | <u>STATE<sup>1</sup><br/>STATUS</u> | <u>FEDERAL<sup>2</sup><br/>STATUS</u> |
|--|--|-------------------------------------|---------------------------------------|
| <b>PLANTS</b>                          |  |                                     |                                       |
| <i>Asclepias meadii</i>                | Mead's Milkweed                        | Endangered                          | Threatened                            |
| <i>Boltonia decurrens</i>              | Decurrent False Aster                  | Endangered                          | Threatened                            |
| <i>Geocarpon minimum</i>               | Geocarp                                | Endangered                          | Threatened                            |
| <i>Helenium virginicum</i>             | Virginia Sneezeweed                    | Endangered                          | Threatened                            |
| <i>Isotria medeoloides</i>             | Small Whorled Pogonia <sup>3</sup>     | Endangered                          | Threatened                            |
| <i>Lindera melissifolia</i>            | Pondberry                              | Endangered                          | Endangered                            |
| <i>Physaria filiformis</i>             | Missouri Bladder-pod                   | Endangered                          | Threatened                            |
| <i>Platanthera leucophaea</i>          | E. Prairie Fringed Orchid <sup>3</sup> | Endangered                          | Threatened                            |
| <i>Platanthera praeclara</i>           | W. Prairie Fringed Orchid              | Endangered                          | Threatened                            |
| <i>Trifolium stoloniferum</i>          | Running Buffalo Clover                 | Endangered                          | Endangered                            |
| <b>MOLLUSKS</b>                        |  |                                     |                                       |
| <i>Antrobia culveri</i>                | Tumbling Creek Cavesnail               | Endangered                          | Endangered                            |
| <i>Cumberlandia monodonta</i>          | Spectaclecase                          |                                     | Candidate                             |
| <i>Elliptio crassidens</i>             | Elephantear                            | Endangered                          |                                       |
| <i>Epioblasma florentina curtisii</i>  | Curtis Pearlymussel                    | Endangered                          | Endangered                            |
| <i>Epioblasma triquetra</i>            | Snuffbox                               | Endangered                          |                                       |
| <i>Fusconaia ebena</i>                 | Ebonyshell                             | Endangered                          |                                       |
| <i>Lampsilis abrupta</i>               | Pink Mucket                            | Endangered                          | Endangered                            |
| <i>Lampsilis higginsii</i>             | Higgins Eye                            | Endangered                          | Endangered                            |
| <i>Lampsilis rafinesqueana</i>         | Neosho Mucket                          |                                     | Candidate                             |
| <i>Leptodea leptodon</i>               | Scaleshell                             | Endangered                          | Endangered                            |
| <i>Plethobasus cyphus</i>              | Sheepnose                              | Endangered                          | Candidate                             |
| <i>Potamilus capax</i>                 | Fat Pocketbook                         | Endangered                          | Endangered                            |
| <i>Quadrula fragosa</i>                | Winged Mapleleaf                       | Endangered                          | Endangered                            |
| <i>Quadrula cylindrica cylindrica</i>  | Rabbitsfoot                            |                                     | Candidate                             |
| <b>INSECTS</b>                         |  |                                     |                                       |
| <i>Nicrophorus americanus</i>          | American Burying Beetle <sup>3</sup>   | Endangered                          | Endangered                            |
| <i>Somatochlora hineana</i>            | Hine's Emerald Dragonfly               | Endangered                          | Endangered                            |
| <b>FISH</b>                            |  |                                     |                                       |
| <i>Acipenser fulvescens</i>            | Lake Sturgeon                          | Endangered                          |                                       |
| <i>Amblyopsis rosae</i>                | Ozark Cavefish                         | Endangered                          | Threatened                            |
| <i>Cottus</i> sp. cf. <i>carolinae</i> | Grotto Sculpin                         |                                     | Candidate                             |
| <i>Crystallaria asprella</i>           | Crystal Darter                         | Endangered                          |                                       |
| <i>Etheostoma cragini</i>              | Arkansas Darter                        |                                     | Candidate                             |
| <i>Etheostoma fusiforme</i>            | Swamp Darter                           | Endangered                          |                                       |
| <i>Etheostoma histrion</i>             | Harlequin Darter                       | Endangered                          |                                       |
| <i>Etheostoma nianguae</i>             | Niangua Darter                         | Endangered                          | Threatened                            |
| <i>Etheostoma parvipinne</i>           | Goldstripe Darter                      | Endangered                          |                                       |
| <i>Etheostoma whipplei</i>             | Redfin Darter                          | Endangered                          |                                       |
| <i>Forbesichthys agassizi</i>          | Spring Cavefish                        | Endangered                          |                                       |
| <i>Hybognathus hayi</i>                | Cypress Minnow                         | Endangered                          |                                       |
| <i>Notropis maculatus</i>              | Taillight Shiner                       | Endangered                          |                                       |
| <i>Notropis sabinae</i>                | Sabine Shiner                          | Endangered                          |                                       |
| <i>Notropis topeka</i>                 | Topeka Shiner                          | Endangered                          | Endangered                            |
| <i>Noturus eleutherus</i>              | Mountain Madtom                        | Endangered                          |                                       |
| <i>Noturus placidus</i>                | Neosho Madtom                          | Endangered                          | Threatened                            |
| <i>Percina nasuta</i>                  | Longnose Darter                        | Endangered                          |                                       |
| <i>Platygobio gracilis</i>             | Flathead Chub                          | Endangered                          |                                       |
| <i>Scaphirhynchus albus</i>            | Pallid Sturgeon                        | Endangered                          | Endangered                            |
| <i>Scaphirhynchus platyrhynchus</i>    | Shovelnose Sturgeon                    |                                     | Threatened/SA                         |
| <i>Umbra limi</i>                      | Central Mudminnow                      | Endangered                          |                                       |

## THREATENED AND ENDANGERED SPECIES IN MISSOURI (Cont.)

| <u>SCIENTIFIC NAME</u>                 | <u>COMMON NAME</u>                         | <u>STATE<sup>1</sup><br/>STATUS</u> | <u>FEDERAL<sup>2</sup><br/>STATUS</u> |
|--|--|-------------------------------------|---------------------------------------|
| <b>AMPHIBIANS</b>                      |  |                                     |                                       |
| <i>Cryptobranchus a. alleganiensis</i> | Eastern Hellbender                         | Endangered                          |                                       |
| <i>Cryptobranchus a. bishopi</i>       | Ozark Hellbender                           | Endangered                          | Endangered                            |
| <b>REPTILES</b>                        |  |                                     |                                       |
| <i>Deirochelys reticularia miaria</i>  | Western Chicken Turtle                     | Endangered                          |                                       |
| <i>Emydoidea blandingii</i>            | Blanding's Turtle                          | Endangered                          |                                       |
| <i>Kinosternon flavescens</i>          | Yellow Mud Turtle                          | Endangered                          |                                       |
| <i>Nerodia cyclopion</i>               | Mississippi Green Water Snake <sup>3</sup> | Endangered                          |                                       |
| <i>Sistrurus c. catenatus</i>          | Eastern Massasauga                         | Endangered                          | Candidate                             |
| <b>BIRDS</b>                           |  |                                     |                                       |
| <i>Botaurus lentiginosus</i>           | American Bittern                           | Endangered                          |                                       |
| <i>Circus cyaneus</i>                  | Northern Harrier                           | Endangered                          |                                       |
| <i>Egretta thula</i>                   | Snowy Egret                                | Endangered                          |                                       |
| <i>Falco peregrinus</i>                | Peregrine Falcon                           | Endangered                          |                                       |
| <i>Limnothlypis swainsonii</i>         | Swainson's Warbler                         | Endangered                          |                                       |
| <i>Peaeca aestivalis</i>               | Bachman's Sparrow                          | Endangered                          |                                       |
| <i>Rallus elegans</i>                  | King Rail                                  | Endangered                          |                                       |
| <i>Sterna antillarum athalassos</i>    | Interior Least Tern                        | Endangered                          | Endangered                            |
| <i>Tympanuchus cupido</i>              | Greater Prairie-chicken                    | Endangered                          |                                       |
| <b>MAMMALS</b>                         |  |                                     |                                       |
| <i>Canus lupus</i>                     | Gray Wolf                                  |                                     | Endangered                            |
| <i>Corynorhinus townsendii ingens</i>  | Ozark Big-eared Bat <sup>3</sup>           | Endangered                          | Endangered                            |
| <i>Lepus californicus</i>              | Black-tailed Jackrabbit                    | Endangered                          |                                       |
| <i>Myotis grisescens</i>               | Gray Bat                                   | Endangered                          | Endangered                            |
| <i>Myotis sodalis</i>                  | Indiana Bat                                | Endangered                          | Endangered                            |
| <i>Spilogale putorius interrupta</i>   | Plains Spotted Skunk                       | Endangered                          |                                       |

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<sup>1</sup> Listed in the Wildlife Code of Missouri, Rule 3 CSR10-4, 111 Endangered Species.

<sup>2</sup> Federally Listed Species under the Endangered Species Act (ESA) of 1973 as Amended:

Endangered = Any species that is in danger of extinction throughout all or a significant portion of its range.

Threatened = Any species that is likely to become endangered within the foreseeable future.

Candidate = Plants or animals that the U.S. Fish & Wildlife Service is reviewing for possible addition to the list of Endangered and Threatened species.

Proposed = Any species proposed for listing as Threatened or Endangered by the U.S. Fish & Wildlife Service.

Threatened/SA = Any species listed Threatened due to Similarity of Appearance by the U.S. Fish & Wildlife Service.

<sup>3</sup> Considered extirpated, historical or accidental occurrence in Missouri.

## SPECIES AND STATUSES

| <u>SCIENTIFIC NAME</u>                  | <u>COMMON NAME</u>   | <u>SRANK</u> | <u>GRANK</u> | <u>STATE<br/>STATUS</u> | <u>FEDERAL<br/>STATUS</u> |
|---|----------------------|--------------|--------------|-------------------------|---------------------------|
| <b>LICHENS</b>                          |                      |              |              |                         |                           |
| Cladonia cervicornis ssp. verticillata  | A Lichen             | S?           | G5TNR        |                         |                           |
| Cladonia leporina                       | A Lichen             | S2           | G4G5         |                         |                           |
| Coenogonium missouriense                | Missouri Cave Lichen | SH           | GH           |                         |                           |
| Collema nigrescens                      | A Lichen             | SU           | G5?          |                         |                           |
| Dendroscopula intricatulum              | A Lichen             | S?           | GUQ          |                         |                           |
| Dermatocarpon moulinsii                 | A Lichen             | S1           | GNR          |                         |                           |
| Dibaeis absoluta                        | A Lichen             | S1           | G4           |                         |                           |
| Flavoparmelia rutidota                  | A Lichen             | S?           | G4G5         |                         |                           |
| Graphina sophisticascens                | A Lichen             | SH           | GNR          |                         |                           |
| Imshaugia aleurites                     | A Lichen             | S?           | G5           |                         |                           |
| Lecidea lurida                          | A Lichen             | SU           | GNR          |                         |                           |
| Pannaria rubiginosa                     | A Lichen             | S1           | G4G5         |                         |                           |
| Parmelia squarrosa                      | A Lichen             | S?           | G5           |                         |                           |
| Parmelina horrescens                    | A Lichen             | S1           | G5           |                         |                           |
| Parmotrema hypoleucinum                 | A Lichen             | S1           | G4G5         |                         |                           |
| Parmotrema madagascariaceum             | A Lichen             | S?           | G3G5         |                         |                           |
| Parmotrema tinctorum                    | A Lichen             | S2           | G5?          |                         |                           |
| Pseudocyphellaria aurata                | A Lichen             | S1           | G3G5         |                         |                           |
| Psora icterica                          | A Lichen             | S1           | G5?          |                         |                           |
| Pycnothelia papillaria                  | A Lichen             | S1           | G3G5         |                         |                           |
| Ramalina intermedia                     | A Lichen             | S1           | G4G5         |                         |                           |
| Rimelia subisidiosa                     | A Lichen             | S1           | G4G5         |                         |                           |
| Tuckermannopsis ciliaris                | A Lichen             | S?           | G3G5         |                         |                           |
| Usnea angulata                          | A Lichen             | S1           | G3G5         |                         |                           |
| Xanthoparmelia australasica             | A Lichen             | S1           | G5           |                         |                           |
| <b>Total Lichen Records: 25</b>         |                      |              |              |                         |                           |
| <b>LIVERWORTS AND HORNWORTS</b>         |                      |              |              |                         |                           |
| Aneura maxima                           | A Liverwort          | SU           | G4?          |                         |                           |
| Anthoceros agrestis                     | A Hornwort           | S?           | G4G5         |                         |                           |
| Bazzania trilobata                      | A Liverwort          | S1           | G5           |                         |                           |
| Calypogeia muelleriana ssp. muelleriana | A Liverwort          | SU           | G5T5         |                         |                           |
| Cephalozia connivens                    | A Liverwort          | SU           | G5           |                         |                           |
| Kurzia setacea                          | A Liverwort          | S1           | G4G5         |                         |                           |
| Kurzia sylvatica                        | A Liverwort          | S1           | G5           |                         |                           |
| Lophozia incisa                         | A Liverwort          | SU           | G5           |                         |                           |
| Marchantia aquatica                     | A Liverwort          | SU           | GNR          |                         |                           |
| Marsupella sphacelata                   | A Liverwort          | S1           | G5           |                         |                           |
| Metzgeria conjugata                     | A Liverwort          | S1S2         | G5           |                         |                           |
| Metzgeria furcata                       | A Liverwort          | S?           | G5           |                         |                           |
| Nardia lescurii                         | A Liverwort          | S?           | G3?          |                         |                           |
| Notothylas orbicularis                  | A Hornwort           | S1           | G5           |                         |                           |
| Nowellia curvifolia                     | A Liverwort          | S?           | G5           |                         |                           |
| Oxymitra incrassata                     | A Liverwort          | S1           | GNR          |                         |                           |



| <u>SCIENTIFIC NAME</u>                  | <u>COMMON NAME</u> | <u>SRANK</u> | <u>GRANK</u> | <u>STATE STATUS</u> | <u>FEDERAL STATUS</u> |
|---|--------------------|--------------|--------------|---------------------|-----------------------|
| <b>LIVERWORTS AND HORNWORTS (Cont.)</b> |                    |              |              |                     |                       |
| Phaeoceros oreganus                     | A Hornwort         | S1           | GNRQ         |                     |                       |
| Ptilidium pulcherrimum                  | A Liverwort        | S1           | G5           |                     |                       |
| Rectolejeunea maxonii                   | A Liverwort        | S1           | G4           |                     |                       |
| Riccardia multifida                     | A Liverwort        | S1           | G5           |                     |                       |
| Riccardia palmata                       | A Liverwort        | S1           | G5           |                     |                       |
| Riccia austini                          | A Liverwort        | SU           | G5           |                     |                       |
| Riccia beyrichiana                      | A Liverwort        | SU           | G5           |                     |                       |
| Riccia bifurca                          | A Liverwort        | SU           | G5           |                     |                       |
| Riccia cavernosa                        | A Liverwort        | SU           | G5           |                     |                       |
| Riccia crystallina                      | A Liverwort        | SU           | G4G5         |                     |                       |
| Riccia fluitans                         | Crystalwort        | SU           | G5           |                     |                       |
| Riccia frostii                          | A Liverwort        | SU           | G5           |                     |                       |
| Riccia hirta                            | A Liverwort        | SU           | G5           |                     |                       |
| Riccia macallisteri                     | A Liverwort        | SU           | G2G4         |                     |                       |
| Riccia nigrella                         | A Liverwort        | SU           | G4G5         |                     |                       |
| Riccia ozarkiana                        | A Liverwort        | SH           | G1G2         |                     |                       |
| Riccia sorocarpa                        | A Liverwort        | SU           | G5           |                     |                       |
| Riccia sullivantii                      | A Liverwort        | S?           | G4Q          |                     |                       |

**Total Liverwort and Hornwort Records: 34**

#### **MOSSES**

|  |               |    |         |  |  |
|--|---------------|----|---------|--|--|
| Acaulon muticum var. muticum             | A Moss        | SU | G4G5TNR |  |  |
| Amblystegium polygamum                   | A Moss        | S1 | G5      |  |  |
| Amblystegium protensum                   | A Moss        | SU | G5T3T5  |  |  |
| Amblystegium radicale                    | A Moss        | SU | G3G5    |  |  |
| Anacamptodon splachnoides                | Knothole Moss | SU | G3G5    |  |  |
| Anomobryum filiforme                     | A Moss        | S1 | G4G5    |  |  |
| Archidium alternifolium                  | A Moss        | S1 | G4G5    |  |  |
| Astomum phascoides                       | A Pygmy Moss  | SU | G3G4    |  |  |
| Atrichum crispulum                       | A Moss        | SU | GNR     |  |  |
| Atrichum cylindricum                     | A Moss        | SU | G5      |  |  |
| Brachelyma subulatum                     | A Moss        | S1 | G4G5    |  |  |
| Brachythecium campestre                  | A Moss        | SU | G4G5Q   |  |  |
| Brachythecium salebrosum var. salebrosum | A Moss        | SU | G5TNR   |  |  |
| Bruchia texana                           | A Moss        | SU | G3G5    |  |  |
| Bryhnia novae-angliae                    | A Moss        | SU | G5      |  |  |
| Bryoxiphium norvegicum                   | Sword Moss    | S1 | G5?     |  |  |
| Bryum algovicum var. algovicum           | A Moss        | S1 | G4G5TNR |  |  |
| Bryum cyclophyllum                       | A Moss        | S? | G4G5    |  |  |
| Bryum flaccidum                          | A Moss        | SU | G5      |  |  |
| Bryum klinggraeffii                      | A Moss        | S? | G4G5    |  |  |
| Bryum miniatum                           | A Moss        | S1 | G3G4    |  |  |
| Bryum pallescens                         | A Moss        | SU | G5      |  |  |
| Bryum ruderae                            | A Moss        | SU | G3G5    |  |  |
| Bryum subapiculatum                      | A Moss        | SX | G5?     |  |  |
| Bryum uliginosum                         | A Moss        | S1 | G3G5    |  |  |

| <u>SCIENTIFIC NAME</u>                  | <u>COMMON NAME</u>     | <u>SRANK</u> | <u>GRANK</u> | <u>STATE<br/>STATUS</u> | <u>FEDERAL<br/>STATUS</u> |
|---|------------------------|--------------|--------------|-------------------------|---------------------------|
| <b>MOSSES (Cont.)</b>                   |                        |              |              |                         |                           |
| Calliergonella cuspidata                | A Moss                 | S?           | G5           |                         |                           |
| Campylopodiella stenocarpa              | A Moss                 | S1           | G5           |                         |                           |
| Campylopus tallulensis                  | A Moss                 | S1           | G4           |                         |                           |
| Dichelyma capillaceum                   | A Moss                 | S1           | G5           |                         |                           |
| Dicranella rufescens                    | A Moss                 | S1S2         | G5?          |                         |                           |
| Dicranum polysetum                      | A Moss                 | S1           | G5           |                         |                           |
| Didymodon revolutus                     | A Moss                 | S1           | G4           |                         |                           |
| Didymodon rigidulus var.<br>rigidulus   | A Moss                 | S1           | G5T4?        |                         |                           |
| Ditrichum rhynchostegium                | A Moss                 | SU           | G3G5         |                         |                           |
| Drepanocladus aduncus var.<br>kneiffii  | A Moss                 | SU           | G5T4T5       |                         |                           |
| Encalypta procera                       | Extinguisher Moss      | S1           | G4G5         |                         |                           |
| Entodon brevisetus                      | A Moss                 | SU           | G4?          |                         |                           |
| Ephemerum crassinervium var.<br>texanum | A Moss                 | SU           | G4T3?        |                         |                           |
| Ephemerum serratum                      | A Moss                 | SU           | G4           |                         |                           |
| Fissidens exilis                        | Small Pocket Moss      | SU           | G3G4         |                         |                           |
| Forsstroemia producta                   | A Moss                 | S1           | G5?          |                         |                           |
| Funaria americana                       | A Moss                 | SU           | G3?          |                         |                           |
| Funaria calvescens                      | A Moss                 | SU           | G5           |                         |                           |
| Grimmia olneyi                          | A Moss                 | S?           | G3G5         |                         |                           |
| Grimmia ovalis                          | A Moss                 | SU           | G5?          |                         |                           |
| Grimmia plagiopodia                     | A Moss                 | SU           | G4G5         |                         |                           |
| Gymnostomum calcareum                   | A Moss                 | SU           | G5?          |                         |                           |
| Herzogiella striatella                  | A Moss                 | SU           | G4G5         |                         |                           |
| Homaliadelphus sharpii                  | Sharp's Homaliadelphus | S1           | G3?          |                         |                           |
| Hypnum cupressiforme var.<br>filiforme  | A Moss                 | S1           | G5TNR        |                         |                           |
| Hypnum lindbergii var.<br>americanum    | A Moss                 | SU           | G5TNR        |                         |                           |
| Hypnum pallescens                       | A Moss                 | S1           | G5           |                         |                           |
| Hypnum pratense                         | A Moss                 | SU           | G5           |                         |                           |
| Isopterygiopsis muelleriana             | A Moss                 | S1           | G5           |                         |                           |
| Jaffueliobryum raui                     | A Moss                 | SU           | G4?          |                         |                           |
| Jaffueliobryum wrightii                 | A Moss                 | SU           | G4G5         |                         |                           |
| Leskea polycarpa                        | A Moss                 | SU           | G4G5         |                         |                           |
| Leucodon brachypus                      | A Moss                 | SU           | G5           |                         |                           |
| Micromitrium megalosporum               | A Moss                 | S1S2         | G4           |                         |                           |
| Micromitrium synoicum                   | A Moss                 | SU           | G4           |                         |                           |
| Micromitrium tenerum                    | A Moss                 | SU           | G4G5         |                         |                           |
| Mnium hornum                            | A Moss                 | SU           | G5           |                         |                           |
| Mnium thomsonii                         | A Moss                 | S?           | G5           |                         |                           |
| Myurella sibirica                       | A Moss                 | S?           | G4?          |                         |                           |
| Neckera bessereri                       | A Moss                 | S1           | G4G5         |                         |                           |
| Orthotrichum anomalum                   | A Moss                 | S?           | G4G5         |                         |                           |
| Orthotrichum diaphanum                  | A Moss                 | S?           | G5           |                         |                           |
| Orthotrichum elegans                    | A Moss                 | S1           | G5           |                         |                           |

| <u>SCIENTIFIC NAME</u>                   | <u>COMMON NAME</u>    | <u>SRANK</u> | <u>GRANK</u> | <u>STATE<br/>STATUS</u> | <u>FEDERAL<br/>STATUS</u> |
|--|-----------------------|--------------|--------------|-------------------------|---------------------------|
| <b>MOSSES (Cont.)</b>                    |                       |              |              |                         |                           |
| Orthotrichum lescurii                    | A Moss                | SU           | GNR          |                         |                           |
| Physcomitrium collenchymatum             | A Moss                | S1           | G2G4         |                         |                           |
| Physcomitrium hookeri                    | A Moss                | SU           | G2G4         |                         |                           |
| Plagiomnium medium                       | A Moss                | SU           | G5           |                         |                           |
| Plagiothecium denticulatum               | A Moss                | S1           | G5           |                         |                           |
| Platylomella lescurii                    | A Moss                | S?           | G5           |                         |                           |
| Pleuridium acuminatum                    | A Moss                | SU           | G3G5         |                         |                           |
| Pleuridium sullivantii                   | A Moss                | SU           | G3G5         |                         |                           |
| Pohlia annotina                          | A Moss                | SU           | G4G5         |                         |                           |
| Polytrichum formosum var.<br>densifolium | A Moss                | SU           | G5TNR        |                         |                           |
| Pseudotaxiphyllum distichaceum           | A Moss                | SU           | G4G5         |                         |                           |
| Ptychomitrium serratum                   | A Moss                | SU           | G4?          |                         |                           |
| Ptychomitrium sinense                    | A Moss                | S1           | G4G5         |                         |                           |
| Pylaisia intricata                       | A Moss                | SU           | G4           |                         |                           |
| Pylaisiadelphina tenuirostris            | A Moss                | SU           | G5?          |                         |                           |
| Pyramidula tetragona                     | A Moss                | SU           | G3G5         |                         |                           |
| Racomitrium aciculare                    | A Moss                | SU           | G5           |                         |                           |
| Rhabdoweisia crispata                    | A Moss                | S1           | G5           |                         |                           |
| Rhytidium rugosum                        | Golden Glade-moss     | S1           | G5           |                         |                           |
| Schistidium liliputanum                  | A Moss                | SU           | GNR          |                         |                           |
| Seligeria calcarea                       | A Moss                | S?           | G4?          |                         |                           |
| Seligeria donniana                       | A Moss                | S1           | G4G5         |                         |                           |
| Seligeria pusilla                        | A Moss                | S1           | G3G5         |                         |                           |
| Sematophyllum marylandicum               | A Moss                | S1           | G5           |                         |                           |
| Sphagnum affine                          | Sphagnum              | S1           | G5           |                         |                           |
| Sphagnum angustifolium                   | Narrowleaf Peatmoss   | S1           | G5           |                         |                           |
| Sphagnum bartlettianum                   | Sphagnum              | SU           | G4G5         |                         |                           |
| Sphagnum capillifolium                   | Northern Peatmoss     | S1           | G5           |                         |                           |
| Sphagnum cuspidatum                      | Sphagnum              | SU           | G5           |                         |                           |
| Sphagnum fallax                          | Sphagnum              | SU           | G5           |                         |                           |
| Sphagnum fimbriatum var.<br>fimbriatum   | Sphagnum              | S1           | G5TNR        |                         |                           |
| Sphagnum henryense                       | Sphagnum              | S1           | G4?          |                         |                           |
| Sphagnum inundatum                       | Sphagnum              | S1           | G4           |                         |                           |
| Sphagnum magellanicum                    | Magellan's Peatmoss   | SU           | G5           |                         |                           |
| Sphagnum platyphyllum                    | Sphagnum              | SU           | G5           |                         |                           |
| Sphagnum recurvum                        | Sphagnum              | S1           | G5           |                         |                           |
| Sphagnum russowii                        | Sphagnum              | SU           | G5           |                         |                           |
| Sphagnum subtile                         | Sphagnum              | SU           | G5?Q         |                         |                           |
| Sphagnum trinitense                      | Sphagnum              | S1           | G4           |                         |                           |
| Syntrichia papillosa                     | A Moss                | S?           | G5           |                         |                           |
| Syrhophodon texanus                      | A Moss                | S1           | G5           |                         |                           |
| Thamnobryum alleghaniense                | A Moss                | S1           | G5?          |                         |                           |
| Tortella fragilis                        | Fragmented Screw-moss | SU           | G5           |                         |                           |
| Tortella tortuosa                        | Twisted Moss          | SU           | G5           |                         |                           |
| Trematodon longicollis                   | A Moss                | S1           | G5           |                         |                           |

| <u>SCIENTIFIC NAME</u>                         | <u>COMMON NAME</u>         | <u>SRANK</u> | <u>GRANK</u> | <u>STATE STATUS</u> | <u>FEDERAL STATUS</u> |
|--|----------------------------|--------------|--------------|---------------------|-----------------------|
| <b>MOSESSES (Cont.)</b>                        |                            |              |              |                     |                       |
| Trichostomum tenuirostre var. gemmiparum       | A Moss                     | SU           | G4TNR        |                     |                       |
| Zygodon apiculatus                             | A Moss                     | S1           | GU           |                     |                       |
| <b>Total Moss Records: 115</b>                 |                            |              |              |                     |                       |
| <b>FERNS AND FERN ALLIES</b>                   |                            |              |              |                     |                       |
| Asplenium montanum                             | Mountain Spleenwort        | SH           | G5           |                     |                       |
| Azolla caroliniana                             | Eastern Mosquito Fern      | S1S3         | G5           |                     |                       |
| Botrychium biternatum                          | Few-lobed Grape Fern       | S1           | G5           |                     |                       |
| Cheilanthes alabamensis                        | Alabama Lip-fern           | S1           | G4G5         |                     |                       |
| Cheilanthes tomentosa                          | Woolly Lip-fern            | S1           | G5           |                     |                       |
| Cystopteris tenuis                             | A Bladderfern              | S1           | G4G5         |                     |                       |
| Dennstaedtia punctilobula                      | Hay-scented Fern           | S2           | G5           |                     |                       |
| Dryopteris carthusiana                         | Spinulose Shield Fern      | S2           | G5           |                     |                       |
| Dryopteris celsa                               | Log Fern                   | S1           | G4           |                     |                       |
| Dryopteris cristata                            | Crested Fern               | S1           | G5           |                     |                       |
| Dryopteris goldiana                            | Goldie's Fern              | S2           | G4           |                     |                       |
| Dryopteris intermedia                          | Evergreen Woodfern         | S1           | G5           |                     |                       |
| Huperzia porophila                             | Fir Clubmoss               | S2           | G4           |                     |                       |
| Isoetes engelmannii var. engelmannii           | Engelmann's Quillwort      | S1?          | G4TNR        |                     |                       |
| Lycopodium dendroideum                         | Round-branched Ground Pine | S1           | G5           |                     |                       |
| Lycopodium digitatum                           | A Clubmoss                 | S2           | G5           |                     |                       |
| Lycopodium tristachyum                         | Ground Cedar               | S1           | G5           |                     |                       |
| Matteuccia struthiopteris var. pennsylvanica   | Ostrich Fern               | S2           | G5T5         |                     |                       |
| Ophioglossum crotalophoroides                  | Bulbous Adder's-tongue     | SH           | G5           |                     |                       |
| Ophioglossum petiolatum                        | Stalked Adder's-tongue     | SX           | G5           |                     |                       |
| Pellaea glabella var. missouriensis            | Missouri Cliffbrake        | S1S2         | G5T1T2       |                     |                       |
| Pilularia americana                            | American Pillwort          | SU           | G5           |                     |                       |
| Woodsia obtusa ssp. occidentalis               | Blunt-lobe Woodsia         | S1           | G5T3T4       |                     |                       |
| Woodwardia areolata                            | Netted Chain Fern          | S2           | G5           |                     |                       |
| <b>Total Ferns and Fern Allies Records: 24</b> |                            |              |              |                     |                       |
| <b>FLOWERING PLANTS</b>                        |                            |              |              |                     |                       |
| Acalypha deamii                                | Large Seeded Mercury       | S1           | G4?          |                     |                       |
| Aconitum uncinatum                             | Southern Monkshood         | S1           | G4           |                     |                       |
| Agalinis auriculata                            | Auriculate False Foxglove  | S3           | G3           |                     |                       |
| Agalinis heterophylla                          | Prairie False Foxglove     | S1           | G4G5         |                     |                       |
| Agalinis purpurea                              | Purple False Foxglove      | S2           | G5           |                     |                       |
| Agalinis viridis                               | Green False Foxglove       | S1           | G4?          |                     |                       |
| Agastache scrophulariifolia                    | Purple Giant-hyssop        | S1           | G4           |                     |                       |
| Agrimonia gryposepala                          | Tall Agrimony              | SU           | G5           |                     |                       |
| Allium burdickii                               | Wild Leek                  | S2           | G4G5         |                     |                       |
| Alopecurus aequalis                            | Floating Foxtail Grass     | S2           | G5           |                     |                       |
| Amsonia ciliata var. filifolia                 | Ciliate Blue Star          | S2S3         | G5?T4?       |                     |                       |

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| <b>FLOWERING PLANTS (Cont.)</b>        |                          |              |              |                     |                       |
| Anemone cylindrica                     | Thimbleweed              | S2           | G5           |                     |                       |
| Anemone quinquefolia                   | Wood Anemone             | S1           | G5           |                     |                       |
| Aralia nudicaulis                      | Wild Sarsaparilla        | S2           | G5           |                     |                       |
| Aristida adscensionis                  | Sixweeks Three-awn       | SH           | G5           |                     |                       |
| Aristida desmantha                     | Curly Three-awn          | S1           | G5           |                     |                       |
| Aristida lanosa                        | Woollyleaf Three-awn     | S1           | G5           |                     |                       |
| Aristida ramosissima                   | Slender Three-awn        | SH           | G5           |                     |                       |
| Aronia melanocarpa                     | Black Chokeberry         | S1           | G5           |                     |                       |
| Artemisia dracunculus                  | A Wormwood               | SH           | G5           |                     |                       |
| Asclepias meadii                       | Mead's Milkweed          | S2           | G2           | E                   | T                     |
| Asclepias speciosa                     | Showy Milkweed           | SA           | G5           |                     |                       |
| Astragalus lotiflorus                  | Low Milk Vetch           | S2           | G5           |                     |                       |
| Astranthium ciliatum                   | Western Daisy            | S2           | G5T5         |                     |                       |
| Bartonia paniculata ssp. paniculata    | Screwstem                | S1           | G5T5         |                     |                       |
| Bartonia virginica                     | Yellow Bartonia          | S1           | G5           |                     |                       |
| Berberis canadensis                    | American Barberry        | S2           | G3           |                     |                       |
| Bergia texana                          | Bergia                   | S2           | G5           |                     |                       |
| Berula erecta var. incisum             | Cut-leaved Water-parsnip | S1           | G4G5T4T5     |                     |                       |
| Bidens laevis                          | A Beggar's Tick          | S1           | G5           |                     |                       |
| Bolboschoenus maritimus ssp. paludosus | Bayonet Grass            | S1           | G5T5         |                     |                       |
| Boltonia decurrens                     | Decurrent False Aster    | S1           | G2           | E                   | T                     |
| Bouteloua gracilis                     | Blue Grama               | S1           | G5           |                     |                       |
| Bouteloua hirsuta var. hirsuta         | Hairy Grama              | S2           | G5T5         |                     |                       |
| Bromus latiglumis                      | A Brome                  | S3           | G5           |                     |                       |
| Buchloe dactyloides                    | Buffalo Grass            | SH           | G4G5         |                     |                       |
| Calamagrostis porteri ssp. insperata   | Oferhollow Reed Grass    | S3           | G4T3         |                     |                       |
| Calamagrostis stricta ssp. inexpansa   | Northern Reedgrass       | S2S3         | G5T5         |                     |                       |
| Calamovilfa longifolia var. longifolia | Long-leaved Reed Grass   | SH           | G5T5         |                     |                       |
| Callicarpa americana                   | French Mulberry          | S1           | G5           |                     |                       |
| Callirhoe bushii                       | Bush's Poppy Mallow      | S2           | G3           |                     |                       |
| Callirhoe triangulata                  | Clustered Poppy Mallow   | SH           | G3           |                     |                       |
| Calopogon oklahomensis                 | Grass Pink Orchid        | SU           | G3           |                     |                       |
| Calopogon tuberosus                    | Grass Pink Orchid        | S2           | G5           |                     |                       |
| Caltha palustris var. palustris        | Marsh Marigold           | S1           | G5T5         |                     |                       |
| Camassia angusta                       | A Wild Hyacinth          | S3           | G5?Q         |                     |                       |
| Campanula aparinoides var. aparinoides | Marsh Bellflower         | S1           | G5TNR        |                     |                       |
| Campanula rotundifolia                 | Harebell                 | S1           | G5           |                     |                       |
| Carex abscondita                       | A Sedge                  | S1           | G4G5         |                     |                       |
| Carex alata                            | Broadwing Sedge          | S2S3         | G5           |                     |                       |
| Carex albicans var. australis          | Bellow Beaked Sedge      | S1           | G5T5         |                     |                       |
| Carex albolutescens                    | Greenish-white Sedge     | S1S2         | G5           |                     |                       |
| Carex aquatilis var. substricta        | A Sedge                  | S1           | G5TNR        |                     |                       |
| Carex arkansana                        | A Sedge                  | S3           | G4           |                     |                       |

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| <b>FLOWERING PLANTS (Cont.)</b>     |                      |              |              |                     |                       |
| Carex atherodes                     | Awned Sedge          | S1           | G5           |                     |                       |
| Carex atlantica ssp. atlantica      | A Sedge              | S1           | G5T4         |                     |                       |
| Carex bromoides ssp. bromoides      | A Sedge              | S2           | G5T5         |                     |                       |
| Carex buxbaumii                     | Brown Bog Sedge      | S2           | G5           |                     |                       |
| Carex cherokeensis                  | Cherokee Sedge       | S2           | G4G5         |                     |                       |
| Carex communis var. communis        | Fibrous-root Sedge   | S2           | G5T5         |                     |                       |
| Carex comosa                        | Bristly Sedge        | S2           | G5           |                     |                       |
| Carex conoidea                      | Field Sedge          | S1           | G5           |                     |                       |
| Carex cumberlandensis               | A Sedge              | S1           | GNR          |                     |                       |
| Carex debilis var. debilis          | White-edge Sedge     | S1           | G5T5         |                     |                       |
| Carex decomposita                   | Epiphytic Sedge      | S3           | G3           |                     |                       |
| Carex fissa var. fissa              | A Sedge              | S1           | G4?T3T4      |                     |                       |
| Carex flaccosperma                  | A Sedge              | S2           | G5           |                     |                       |
| Carex gigantea                      | Giant Sedge          | S1S2         | G4           |                     |                       |
| Carex gracillima                    | Graceful Sedge       | S1           | G5           |                     |                       |
| Carex jorii                         | Cypress-swamp Sedge  | SH           | G4G5         |                     |                       |
| Carex lacustris                     | Lake-bank Sedge      | S2           | G5           |                     |                       |
| Carex laxiflora var. laxiflora      | A Carex              | S1           | G5T5         |                     |                       |
| Carex longii                        | Greenish-white Sedge | S1           | G5           |                     |                       |
| Carex microdonta                    | A Sedge              | S1           | G4           |                     |                       |
| Carex molestiformis                 | A Sedge              | S2           | G4           |                     |                       |
| Carex nigromarginata var. floridana | A Sedge              | S1           | G5T5?        |                     |                       |
| Carex oxylepis                      | Sharp-scale Sedge    | S2           | G5?          |                     |                       |
| Carex prasina                       | Drooping Sedge       | S1           | G4           |                     |                       |
| Carex reniformis                    | Reniform Sedge       | S1           | G4?          |                     |                       |
| Carex reznicekii                    | A Sedge              | S2?          | G5           |                     |                       |
| Carex sartwellii                    | Sartwell's Sedge     | S1           | G4G5         |                     |                       |
| Carex scabrata                      | Rough Sedge          | SH           | G5           |                     |                       |
| Carex socialis                      | A Sedge              | S2           | G4           |                     |                       |
| Carex spengelii                     | Longbeak Sedge       | S1           | G5?          |                     |                       |
| Carex sterilis                      | A Sedge              | S2           | G4           |                     |                       |
| Carex straminea                     | Straw Sedge          | S1           | G5           |                     |                       |
| Carex stricta                       | Tussock Sedge        | S3           | G5           |                     |                       |
| Carex sychnocephala                 | A Sedge              | S1           | G4           |                     |                       |
| Carex tenera var. echinodes         | A Sedge              | SH           | G5TNRQ       |                     |                       |
| Carex tetanica                      | Rigid Sedge          | S3           | G4G5         |                     |                       |
| Carex timida                        | Timid Sedge          | S1S2         | G2G3         |                     |                       |
| Carex tonsa var. rugosperma         | Shaved Sedge         | S1           | G5T5         |                     |                       |
| Carex tonsa var. tonsa              | Shaved Sedge         | SH           | G5T4T5       |                     |                       |
| Carex triangularis                  | Triangular Sedge     | S2           | G5           |                     |                       |
| Carex trichocarpa                   | Hairy-fruited Sedge  | S1           | G4           |                     |                       |
| Carex vesicaria var. monile         | A Sedge              | S2?          | G5T4         |                     |                       |
| Carex willdenowii                   | Willdenow's Sedge    | S1           | G5           |                     |                       |
| Carya pallida                       | Sand Hickory         | S2S3         | G5           |                     |                       |
| Castanea pumila var. ozarkensis     | Ozark Chinquapin     | S2           | G5T3         |                     |                       |
| Castilleja purpurea var. purpurea   | Purple Paintbrush    | SH           | G5T4?        |                     |                       |

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| <b>FLOWERING PLANTS (Cont.)</b>         |                          |              |              |                     |                       |
| Castilleja sessiliflora                 | Downy Painted Cup        | S2           | G5           |                     |                       |
| Cayaponia quinqueloba                   | A Gourd                  | S1           | G4           |                     |                       |
| Centaurea americana                     | American basket flower   | SH           | G5           |                     |                       |
| Centrosema virginianum                  | Coastal Butterfly-pea    | SH           | G5           |                     |                       |
| Ceratophyllum echinatum                 | Coontail                 | S1?          | G4?          |                     |                       |
| Chaetopappa asteroides var. asteroides  | Common Leastdaisy        | S2S3         | G5T3T5       |                     |                       |
| Chasmanthium laxum ssp. laxum           | Slender Spike Grass      | S1           | G5T5         |                     |                       |
| Chasmanthium laxum ssp. sessiliflorum   | A Spike Grass            | SH           | G5T5         |                     |                       |
| Chelone obliqua                         | Rose Turtlehead          | S2           | G4           |                     |                       |
| Chenopodium strictum var. glaucophyllum | A Goosefoot              | SH           | G5TU         |                     |                       |
| Cirsium undulatum                       | Wavy-leaved Thistle      | SH           | G5           |                     |                       |
| Cissus trifoliata                       | Marine Vine              | S2           | G5           |                     |                       |
| Claytonia ozarkensis                    | Ozark Spring Beauty      | SU           | G1G3Q        |                     |                       |
| Clematis fremontii                      | Fremont's Leather Flower | S3           | G5           |                     |                       |
| Clematis viorna                         | A Leatherflower          | S1           | G5           |                     |                       |
| Cleome serrulata                        | Rock Mountain Bee Plant  | SH           | G5           |                     |                       |
| Coeloglossum viride var. virescens      | Long-bracted Orchid      | S1           | G5T5         |                     |                       |
| Coelorachis cylindrica                  | Joint Grass              | S1           | G4G5         |                     |                       |
| Conyza canadensis var. pusilla          | Fleabane                 | S1S2         | G5T5         |                     |                       |
| Corispermum pallasii                    | A Bugseed                | SH           | G4?          |                     |                       |
| Corispermum villosum                    | Oriental Tick-seed       | SU           | G4?          |                     |                       |
| Corydalis micrantha ssp. australis      | A Corydalis              | S2           | G5T5?        |                     |                       |
| Crataegus marshallii                    | Parsley Haw              | S1           | G5           |                     |                       |
| Crataegus spathulata                    | A Hawthorn               | S1           | G5           |                     |                       |
| Croton michauxii                        | Narrowleaf Rushfoil      | S1           | G5           |                     |                       |
| Cyclachaena xanthifolia                 | A Marsh Elder            | S1           | G5           |                     |                       |
| Cynoscadium digitatum                   | Finger Dog-shade         | S2           | G4G5         |                     |                       |
| Cyperus compressus                      | Coco Grass               | SU           | G5           |                     |                       |
| Cyperus croceus                         | Baldwin's Cyperus        | S1           | G5           |                     |                       |
| Cyperus diandrus                        | Umbrella Flatsedge       | S1           | G5           |                     |                       |
| Cyperus flavicomus                      | An Umbrella Sedge        | S1           | G5           |                     |                       |
| Cyperus grayoides                       | An Umbrella Sedge        | S3           | G3           |                     |                       |
| Cyperus hystericinus                    | Flatsedge                | S1           | G4           |                     |                       |
| Cyperus plukenetii                      | Plukenet's Cyperus       | S1           | G5           |                     |                       |
| Cyperus polystachyos var. texensis      | Many-spiked Cyperus      | S2S3         | G5T5         |                     |                       |
| Cyperus retroflexus                     | Umbrella Sedge           | S1           | G5           |                     |                       |
| Cyperus retrofractus                    | Teasel-like Cyperus      | S1S2         | G5           |                     |                       |
| Cyperus retrorsus                       | An umbrella sedge        | SH           | G5           |                     |                       |
| Cyperus schweinitzii                    | Schweinitz's Flatsedge   | S3           | G5           |                     |                       |
| Cyperus setigerus                       | Bristled Cyperus         | S1           | G3G5         |                     |                       |
| Cypripedium candidum                    | Small White Lady-slipper | S1           | G4           |                     |                       |
| Cypripedium reginae                     | Showy Lady-slipper       | S2S3         | G4           |                     |                       |
| Dalea enneandra                         | Nine-anther Dalea        | S2           | G5           |                     |                       |

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| <b>FLOWERING PLANTS (Cont.)</b>         |                             |              |              |                     |                       |
| Dalea gattingeri                        | Gattinger Prairie-clover    | S1           | G3G4         |                     |                       |
| Dalea multiflora                        | Round-headed Prairie Clover | SH           | G5           |                     |                       |
| Decodon verticillatus                   | Swamp Loosestrife           | S1           | G5           |                     |                       |
| Delphinium exaltatum                    | Tall Larkspur               | S2           | G3           |                     |                       |
| Descurainia pinnata ssp. pinnata        | Tansy Mustard               | S2S3         | G5T5         |                     |                       |
| Desmodium ochroleucum                   | Creamflower Tick Trefoil    | SH           | G1G2         |                     |                       |
| Desmodium strictum                      | Pineland Tick Trefoil       | S1           | G4           |                     |                       |
| Desmodium viridiflorum                  | Velvety Tick Trefoil        | S1           | G5?          |                     |                       |
| Diarrhena americana                     | American Beakgrass          | S1           | G4G5         |                     |                       |
| Dichondra carolinensis                  | Pony-foot Grass             | S1           | G5           |                     |                       |
| Dirca decipiens                         | Leatherwood                 | SU           | G1G2         |                     |                       |
| Distichlis spicata var. spicata         | Seashore Salt Grass         | S1           | G5TNR        |                     |                       |
| Dodecatheon amethystinum                | Amethyst Shooting Star      | S2           | G4           |                     |                       |
| Dodecatheon frenchii                    | French's Shooting Star      | S1           | G3           |                     |                       |
| Doellingeria umbellata var. pubens      | Flat-topped White Aster     | S1           | G5T5         |                     |                       |
| Echinacea angustifolia                  | Narrow-leaved Coneflower    | SH           | G4           |                     |                       |
| Echinochloa walteri                     | A Barnyard Grass            | S1           | G5           |                     |                       |
| Echinodorus tenellus var. parvulus      | Dwarf Burhead               | S1           | G3T3         |                     |                       |
| Elatine triandra                        | Waterwort                   | SH           | G5           |                     |                       |
| Eleocharis atropurpurea                 | A Spike Rush                | S1           | G4G5         |                     |                       |
| Eleocharis equisetoides                 | Horsetail Spike Rush        | SH           | G4           |                     |                       |
| Eleocharis lanceolata                   | Lance-like Spike Rush       | S1           | G4G5         |                     |                       |
| Elodea canadensis                       | Broad Waterweed             | SU           | G5           |                     |                       |
| Elymus diversiglumis                    | Wild Rye                    | SH           | G3G4Q        |                     |                       |
| Epifagus virginiana                     | Beech Drops                 | S2           | G5           |                     |                       |
| Epilobium leptophyllum                  | Willow Herb                 | S1           | G5           |                     |                       |
| Eragrostis glomerata                    | A Love Grass                | S1           | G3G5         |                     |                       |
| Eragrostis reptans                      | Creeping Love Grass         | SH           | G5           |                     |                       |
| Erianthus giganteus                     | Plume Grass                 | S1           | G5           |                     |                       |
| Erianthus strictus                      | Narrow Plumegrass           | SH           | G5           |                     |                       |
| Eriogonum longifolium var. longifolium  | Umbrella Plant              | S2           | G4T4         |                     |                       |
| Erysimum capitatum var. capitatum       | Western Wallflower          | S3?          | G5T5         |                     |                       |
| Euonymus americanus                     | Strawberry Bush             | S2           | G5           |                     |                       |
| Eupatorium maculatum var. bruneri       | Spotted Joe-pye Weed        | S1           | G5T4T5Q      |                     |                       |
| Eupatorium rotundifolium var. scabridum | A Thoroughwort              | S1?          | G5T3T5       |                     |                       |
| Eupatorium semiserratum                 | A Thoroughwort              | S1S2         | G5           |                     |                       |
| Euphorbia geyeri var. geyeri            | Geyer's Spurge              | S1           | G5T5         |                     |                       |
| Eurybia furcata                         | Forked Aster                | S2           | G3           |                     |                       |
| Eurybia macrophylla                     | Big-leaved Aster            | S2           | G5           |                     |                       |
| Festuca sororia                         | A Fescue                    | SH           | G4           |                     |                       |
| Filipendula rubra                       | Queen of the Prairie        | S2           | G4G5         |                     |                       |



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| <b>FLOWERING PLANTS (Cont.)</b>             |                          |              |              |                     |                       |
| Fimbristylis littoralis var. littoralis     | A Fimbristylis           | S1?          | G3G5TNR      |                     |                       |
| Floerkea proserpinacoides                   | False Mermaid            | SU           | G5           |                     |                       |
| Fragaria vesca var. americana               | Woodland Strawberry      | S1           | G5T5         |                     |                       |
| Fuirena simplex var. aristulata             | An Umbrella Grass        | S2?          | G5T4         |                     |                       |
| Gaillardia aestivalis var. flavovirens      | A Blanket Flower         | SH           | G5T3T5       |                     |                       |
| Galium boreale ssp. septentrionale          | Northern Bedstraw        | S2           | G5TNR        |                     |                       |
| Gaura coccinea                              | Scarlet Gaura            | S1           | G5           |                     |                       |
| Gaylussacia baccata                         | Black Huckleberry        | S1           | G5           |                     |                       |
| Gentiana andrewsii var. andrewsii           | Closed Gentian           | S1           | G5?T5?       |                     |                       |
| Geocarpon minimum                           | Geocarpon                | S2           | G2           | E                   | T                     |
| Geum virginianum                            | Pale Avens               | S1           | G5           |                     |                       |
| Gillenia trifoliata                         | Indian Physic            | SH           | G4G5         |                     |                       |
| Glyceria acutiflora                         | Sharp-scaled Manna Grass | S3           | G5           |                     |                       |
| Glyceria septentrionalis var. arkansana     | Eastern Manna Grass      | SU           | G5           |                     |                       |
| Glycyrrhiza lepidota var. lepidota          | Wild Licorice            | S1           | G5TNRQ       |                     |                       |
| Gratiola viscidula ssp. viscidula           | Hedge Hyssop             | S1           | G4G5TNR      |                     |                       |
| Grindelia ciliata                           | A Goldenweed             | S1           | G4G5         |                     |                       |
| Hedyotis boscii                             | A Bluet                  | S1           | G5           |                     |                       |
| Hedyotis uniflora                           | Clustered Bluets         | S1           | G5           |                     |                       |
| Helenium virginicum                         | Virginia Sneezeweed      | S3           | G3           | E                   | T                     |
| Helianthemum canadense                      | A Rockrose               | SU           | G5           |                     |                       |
| Helianthus angustifolius                    | Swamp Sunflower          | S2           | G5           |                     |                       |
| Heliotropium curassavicum var. curassavicum | Seaside Heliotrope       | S1           | G5T5         |                     |                       |
| Heterotheca canescens                       | Hoary Golden Aster       | SH           | G5?          |                     |                       |
| Heuchera parviflora var. parviflora         | Little Leaved Alum Root  | S1           | G4T4         |                     |                       |
| Hottonia inflata                            | Featherfoil              | S2           | G4           |                     |                       |
| Hydrocotyle ranunculoides                   | Floating Pennywort       | S1S2         | G5           |                     |                       |
| Hydrocotyle verticillata                    | Water Pennywort          | S1           | G5           |                     |                       |
| Hydrolea ovata                              | Ovate Fiddleleaf         | S2           | G5           |                     |                       |
| Hypericum adpressum                         | Creeping St. John's-wort | S1           | G3           |                     |                       |
| Hypericum ascyron ssp. pyramidatum          | Great St. John's-wort    | S1           | G4           |                     |                       |
| Hypericum lobocarpum                        | A St. John's Wort        | S1           | G4Q          |                     |                       |
| Hypericum majus                             | Greater St. John's-wort  | SH           | G5           |                     |                       |
| Ilex verticillata var. padifolia            | Winterberry              | S3           | G5TNR        |                     |                       |
| Isolepis molesta                            | Gulf Coast Bulrush       | SH           | G4?          |                     |                       |
| Isotria medeoloides                         | Small Whorled Pogonia    | SH           | G2           | E                   | T                     |
| Isotria verticillata                        | Large Whorled Pogonia    | S1S2         | G5           |                     |                       |
| Juncus alpinoarticulatus                    | Richardson Rush          | SH           | G5           |                     |                       |
| Juncus balticus var. littoralis             | Baltic Rush              | S1           | G5T5         |                     |                       |
| Juncus brachyphyllus                        | Small-headed Rush        | SH           | G5           |                     |                       |
| Juncus bufonius var. bufonius               | Toad Rush                | S1           | G5T5         |                     |                       |

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| <b>FLOWERING PLANTS (Cont.)</b>           |                         |              |              |                     |                       |
| Juncus canadensis var. canadensis         | Canada Rush             | S1           | G5T5         |                     |                       |
| Juncus debilis                            | Weak Rush               | S1           | G5           |                     |                       |
| Juncus nodosus                            | Knotted Rush            | SH           | G5           |                     |                       |
| Juncus validus                            | A Rush                  | S1           | G5           |                     |                       |
| Justicia ovata var. lanceolata            | A Water Willow          | S2           | G5T4T5       |                     |                       |
| Lactuca hirsuta                           | Hairy Lettuce           | SU           | G5?          |                     |                       |
| Lactuca ludoviciana                       | Western Lettuce         | SH           | G4G5         |                     |                       |
| Lactuca tatarica ssp. pulchella           | Blue Lettuce            | S1           | G5T5         |                     |                       |
| Lathyrus pusillus                         | A Wild Pea              | SH           | G5?          |                     |                       |
| Lechea racemulosa                         | Illinois Pinweed        | SH           | G5           |                     |                       |
| Leitneria floridana                       | Corkwood                | S2           | G3           |                     |                       |
| Lemna obscura                             | A Duckweed              | SU           | G5           |                     |                       |
| Lemna trisulca                            | Star Duckweed           | S2           | G5           |                     |                       |
| Lemna turionifera                         | A Duckweed              | SH           | G5           |                     |                       |
| Liatris punctata var. punctata            | A Blazing Star          | S3           | G5T5         |                     |                       |
| Liatris scariosa var. nieuwlandii         | A Blazing Star          | S2           | G5?T3T5      |                     |                       |
| Liatris spicata                           | Button Snakeroot        | SX           | G5           |                     |                       |
| Lilium philadelphicum var. andinum        | Wood Lily               | S1           | G5T4T5       |                     |                       |
| Lilium superbum                           | Turk's Cap Lily         | S1           | G5           |                     |                       |
| Limnobium spongia ssp. spongia            | American Frogbit        | S2           | G4           |                     |                       |
| Limnoscium pinnatum                       | Pinnate Dogshade        | S1           | G5?          |                     |                       |
| Limosella aquatica                        | Mudwort                 | SH           | G5           |                     |                       |
| Lindera melissifolia                      | Pondberry               | S1           | G2G3         | E                   | E                     |
| Liparis loeselii                          | Loesel's Twayblade      | S2           | G5           |                     |                       |
| Lipocarpha aristulata                     | Lipocarpha              | SH           | G5?          |                     |                       |
| Lipocarpha drummondii                     | A Lipocarpha            | SH           | G4G5         |                     |                       |
| Listera australis                         | Southern Twayblade      | S1           | G4           |                     |                       |
| Lithospermum latifolium                   | American Gromwell       | S2           | G4           |                     |                       |
| Lobelia puberula                          | Downy Lobelia           | SH           | G5           |                     |                       |
| Lomatium foeniculaceum ssp. foeniculaceum | Hairy Parsley           | S1S3         | G5T5         |                     |                       |
| Ludwigia leptocarpa                       | Primrose Willow         | S2           | G5           |                     |                       |
| Ludwigia microcarpa                       | A False Loosestrife     | S2           | G5           |                     |                       |
| Ludwigia repens                           | A False Loosestrife     | SU           | G5           |                     |                       |
| Lycopus asper                             | Bugle Weed              | SH           | G5           |                     |                       |
| Lycopus uniflorus                         | Northern Bugleweed      | S2?          | G5           |                     |                       |
| Lygodesmia juncea                         | Skeleton Plant          | S3           | G5           |                     |                       |
| Lyonia mariana                            | Stagger Bush            | SH           | G5           |                     |                       |
| Lysimachia terrestris                     | Swamp Candle            | S1           | G5           |                     |                       |
| Lysimachia thyrsiflora                    | Tufted Loosestrife      | S1           | G5           |                     |                       |
| Malus angustifolia                        | Narrow-leaved Wild Crab | S2           | G5?          |                     |                       |
| Malvastrum hispidum                       | Yellow False Mallow     | S3           | G3G5         |                     |                       |
| Marshallia caespitosa var. caespitosa     | Barbara's Buttons       | S3           | G4T4         |                     |                       |
| Marshallia caespitosa var. signata        | Barbara's Buttons       | S1           | G4T4         |                     |                       |
| Mecardonia acuminata                      | Water Hyssop            | S1           | G5           |                     |                       |

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| <b>FLOWERING PLANTS (Cont.)</b>          |                            |              |              |                     |                       |
| Medeola virginiana                       | Indian Cucumber-root       | SH           | G5           |                     |                       |
| Melica mutica                            | Two-flowered Melic Grass   | S1           | G5           |                     |                       |
| Menyanthes trifoliata                    | Bogbean                    | S1           | G5           |                     |                       |
| Mimulus glabratus var. jamesii           | Roundleaf Monkey Flower    | SH           | G5T5         |                     |                       |
| Minuartia muscorum                       | Dixie Stitchwort           | S1           | GNR          |                     |                       |
| Mitreola petiolata                       | Miterwort                  | S1           | G5           |                     |                       |
| Moehringia lateriflora                   | Grove Sandwort             | S2S3         | G5           |                     |                       |
| Monarda clinopodia                       | A Horsemint                | SH           | G5           |                     |                       |
| Monarda punctata var. arkansana          | Arkansas Bee Balm          | SA           | G5TNR        |                     |                       |
| Monarda punctata var. occidentalis       | Dotted Monarda             | SA           | G5T4T5       |                     |                       |
| Monarda punctata var. villicaulis        | Horsemint                  | S3           | G5T5?        |                     |                       |
| Muhlenbergia asperifolia                 | Scratchgrass               | S1           | G5           |                     |                       |
| Najas flexilis                           | A Naiad                    | SH           | G5           |                     |                       |
| Najas gracillima                         | Thread-like Naiad          | S2           | G5?          |                     |                       |
| Nemastylis geminiflora                   | Prairie Iris               | S2           | G4           |                     |                       |
| Neviusia alabamensis                     | Snow Wreath                | SH           | G2           |                     |                       |
| Nothocalais cuspidata                    | Prairie Dandelion          | S2           | G5           |                     |                       |
| Nyssa biflora                            | Swamp Black Gum            | SH           | G5           |                     |                       |
| Obolaria virginica                       | Virginia Pennywort         | S2           | G5           |                     |                       |
| Oenothera clelandii                      | Evening Primrose           | S2           | G3G5         |                     |                       |
| Oenothera fruticosa ssp. fruticosa       | Shrubby Sundrops           | S1           | G5T5         |                     |                       |
| Oenothera fruticosa ssp. glauca          | Shrubby Sundrops           | SH           | G5T5         |                     |                       |
| Oenothera nutans                         | Nodding Evening Primrose   | S1S2         | G4           |                     |                       |
| Oenothera perennis                       | Small Sundrops             | S1           | G5           |                     |                       |
| Oenothera rhombipetala                   | An Evening Primrose        | SH           | G4G5         |                     |                       |
| Oenothera triloba                        | Stemless Evening Primrose  | S2           | G4           |                     |                       |
| Opuntia macrorhiza                       | Low Prickly Pear           | S2           | G5           |                     |                       |
| Opuntia polyacantha var. polyacantha     | Starvation Cactus          | SX           | G5T5         |                     |                       |
| Orobanche ludoviciana                    | A Broomrape                | S1           | G5           |                     |                       |
| Orobanche multiflora                     | A Broomrape                | S1           | G5           |                     |                       |
| Oryzopsis racemosa                       | Black-seeded Mountain Rice | S1           | G5           |                     |                       |
| Oxytropis lambertii var. lambertii       | Locoweed                   | S2           | G5TNR        |                     |                       |
| Packera tomentosa                        | Hairy Groundsel            | SH           | G4G5         |                     |                       |
| Panicum dichotomum var. mattamuskeetense | A Panic Grass              | SH           | G4T4?        |                     |                       |
| Panicum dichotomum var. nitidum          | A Panic Grass              | S1           | G5TNR        |                     |                       |
| Panicum dichotomum var. yadkinense       | A Panic Grass              | S1           | G5T4Q        |                     |                       |
| Panicum hians                            | Gaping Panic Grass         | S3           | G5           |                     |                       |
| Panicum leibergii                        | A Panic Grass              | SU           | G5           |                     |                       |
| Panicum portoricense                     | A Panic Grass              | S1?          | G5T5         |                     |                       |
| Panicum verrucosum                       | Warty Panicgrass           | S1           | G4           |                     |                       |
| Paronychia virginica                     | Virginia Whitlow Wort      | S1           | G4           |                     |                       |
| Paspalum bifidum                         | Pitchfork Paspalum         | S1           | G5           |                     |                       |
| Paspalum dissectum                       | Mudbank Paspalum           | SH           | G4?          |                     |                       |

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| <b>FLOWERING PLANTS (Cont.)</b>        |                                |              |              |                     |                       |
| Paspalum setaceum var. setaceum        | Slender Paspalum               | S1           | G5T5         |                     |                       |
| Pedimelum argophyllum                  | Silvery Psoralea               | S2           | G5           |                     |                       |
| Peltandra virginica ssp. virginica     | Arrow Arum                     | S2           | G5T5         |                     |                       |
| Penstemon cobaea var. cobaea           | A Beard-tongue                 | S1           | G4TNR        |                     |                       |
| Penstemon grandiflorus                 | Large Beard-tongue             | S1           | G5?          |                     |                       |
| Perideridia americana                  | Eastern Eulophus               | SU           | G4           |                     |                       |
| Phacelia covillei                      | Coville's Phacelia             | S1           | G3           |                     |                       |
| Philadelphus pubescens var. verrucosus | Mock Orange                    | S1           | G5?TU        |                     |                       |
| Phlox amplifolia                       | Large-leaved Phlox             | S3?          | G3G5         |                     |                       |
| Phlox bifida ssp. stellaria            | Bifid Phlox                    | S1           | G5?T3        |                     |                       |
| Phlox carolina ssp. angusta            | Carolina Phlox                 | SH           | G5?TNR       |                     |                       |
| Phlox carolina ssp. carolina           | Carolina Phlox                 | S1           | G5?T3T5Q     |                     |                       |
| Phlox maculata ssp. pyramidalis        | Wild Sweet William             | S2           | G5T4T5       |                     |                       |
| Phyla nodiflora var. incisa            | Fog Fruit                      | SH           | G5TU         |                     |                       |
| Phyllanthus polygonoides               | Knotweed Leaf-flower           | S1           | G5           |                     |                       |
| Physaria filiformis                    | Missouri Bladder-pod           | S3           | G3           | E                   | T                     |
| Physostegia intermedia                 | A False Dragonhead             | S1           | G5           |                     |                       |
| Plantago patagonica                    | Woolly Plantain                | S2           | G5           |                     |                       |
| Platanthera ciliaris                   | Yellow-fringed Orchid          | S1           | G5           |                     |                       |
| Platanthera clavellata                 | Green Wood Orchid              | S2           | G5           |                     |                       |
| Platanthera flava var. flava           | Pale Green Orchid              | S2           | G4T4?Q       |                     |                       |
| Platanthera flava var. herbiola        | Northern Rein Orchid           | S2           | G4T4Q        |                     |                       |
| Platanthera leucophaea                 | Eastern Prairie Fringed Orchid | S1           | G3           | E                   | T                     |
| Platanthera praeclara                  | Western Prairie Fringed Orchid | S1           | G3           | E                   | T                     |
| Platanthera psycodes                   | Small Purple-fringed Orchid    | SX           | G5           |                     |                       |
| Pluchea foetida var. foetida           | March Fleabane                 | SH           | G5T5         |                     |                       |
| Poa interior                           | Inland Bluegrass               | S1           | G5           |                     |                       |
| Pogonia ophioglossoides                | Snake-mouth Orchid             | S1           | G5           |                     |                       |
| Polygonella americana                  | Jointweed                      | S2           | G5           |                     |                       |
| Polygonum amphibium var. stipulaceum   | Water Smartweed                | S1           | G5T5         |                     |                       |
| Polygonum arifolium                    | Halberd-leaved Tear Thumb      | S1           | G5           |                     |                       |
| Polygonum densiflorum                  | Dense-flower Smartweed         | S1S2         | G5           |                     |                       |
| Polygonum punctatum var. majus         | Dotted Smartweed               | SU           | G4G5         |                     |                       |
| Polymnia laevigata                     | Smooth Leaf-cup                | SX           | G3           |                     |                       |
| Polypremum procumbens                  | Juniper-leaf                   | S2           | G5           |                     |                       |
| Populus grandidentata                  | Big-toothed Aspen              | S1           | G5           |                     |                       |
| Populus tremuloides                    | Quaking Aspen                  | S2           | G5           |                     |                       |
| Potamogeton epihydrus                  | Nuttall Pondweed               | SH           | G5           |                     |                       |
| Potamogeton pulcher                    | Spotted Pondweed               | S2S3         | G5           |                     |                       |
| Potamogeton pusillus var. pusillus     | Slender Pondweed               | S1           | G5T5         |                     |                       |
| Potentilla nicolletii                  | Bushy Cinquefoil               | SH           | GNR          |                     |                       |

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| <b>FLOWERING PLANTS (Cont.)</b>                           |                            |              |              |                     |                       |
| <i>Prenanthes racemosa</i>                                | Rattlesnake Root           | SH           | G5           |                     |                       |
| <i>Ptilimnium capillaceum</i>                             | Mock Bishop's Weed         | SH           | G5           |                     |                       |
| <i>Pycnanthemum muticum</i>                               | Blunt Mountain Mint        | S2           | G5           |                     |                       |
| <i>Pycnanthemum torrei</i>                                | Torrey Mountain Mint       | SH           | G2           |                     |                       |
| <i>Quercus ellipsoidalis</i>                              | Northern Pin Oak           | S1           | G5           |                     |                       |
| <i>Quercus margarettiae</i>                               | Sand Post Oak              | SRF          | G5           |                     |                       |
| <i>Quercus nigra</i>                                      | Water Oak                  | S2           | G5           |                     |                       |
| <i>Quercus prinoides</i>                                  | Dwarf Chinquapin Oak       | S3?          | G5           |                     |                       |
| <i>Quercus texana</i>                                     | Nuttall's Oak              | S2           | G4G5         |                     |                       |
| <i>Ranunculus cymbalaria</i>                              | Seaside Crowfoot           | SH           | G5           |                     |                       |
| <i>Rhynchosia difformis</i>                               | Double-formed Snoutbean    | S1           | G5?          |                     |                       |
| <i>Rhynchospora harveyi</i>                               | Harvey's Beak-rush         | S1           | G4           |                     |                       |
| <i>Rhynchospora macrostachya</i> var. <i>macrostachya</i> | Horned Rush                | S1           | G4T4         |                     |                       |
| <i>Ribes americanum</i>                                   | Gooseberry                 | S1           | G5           |                     |                       |
| <i>Rorippa aquatica</i>                                   | Lake Cress                 | S2           | G4?          |                     |                       |
| <i>Rosa blanda</i>  | Smooth Rose                | S1           | G5           |                     |                       |
| <i>Rosa virginiana</i>                                    | A Rose                     | SU           | G5           |                     |                       |
| <i>Rubus missouricus</i>                                  | Prickly Groundberry        | SH           | GHQ          |                     |                       |
| <i>Rudbeckia amplexicaulis</i>                            | Clasping Leaved Coneflower | S?           | G5           |                     |                       |
| <i>Rudbeckia grandiflora</i> var. <i>grandiflora</i>      | Rough Coneflower           | S1           | G5T4?        |                     |                       |
| <i>Ruppia maritima</i>                                    | Ditch Grass                | S1           | G5           |                     |                       |
| <i>Sabatia brachiata</i>                                  | Marsh Pink                 | S1           | G5?          |                     |                       |
| <i>Sacciolepis striata</i>                                | American Cupscale          | S1           | G5           |                     |                       |
| <i>Sagittaria ambigua</i>                                 | Kansas Arrowhead           | S1           | G2?          |                     |                       |
| <i>Sagittaria platyphylla</i>                             | Ovate-leaved Arrowhead     | S1           | G5           |                     |                       |
| <i>Salix discolor</i>                                     | Pussy Willow               | S1           | G5           |                     |                       |
| <i>Salix eriocephala</i> var. <i>famelica</i>             | Diamond Willow             | SU           | G5TNR        |                     |                       |
| <i>Salix petiolaris</i>                                   | Meadow Willow              | S1           | G5           |                     |                       |
| <i>Sambucus pubens</i>                                    | Red-berried Elderberry     | S1           | G4G5Q        |                     |                       |
| <i>Sanicula smallii</i>                                   | Black Snakeroot            | SH           | G5           |                     |                       |
| <i>Sapindus drummondii</i>                                | Soapberry                  | S2           | G5T5         |                     |                       |
| <i>Schoenoplectus americanus</i>                          | Olney's Bulrush            | SH           | G5           |                     |                       |
| <i>Schoenoplectus californicus</i>                        | Giant Bulrush              | S1           | G5           |                     |                       |
| <i>Schoenoplectus deltarum</i>                            | Delta Bulrush              | SH           | G3G4         |                     |                       |
| <i>Schoenoplectus etuberculatus</i>                       | Canby's Bulrush            | S1           | G3G4         |                     |                       |
| <i>Schoenoplectus hallii</i>                              | Hall's Bulrush             | S2           | G2G3         |                     |                       |
| <i>Schoenoplectus heterochaetus</i>                       | Giant Bulrush              | SU           | G5           |                     |                       |
| <i>Schoenoplectus purshianus</i>                          | Weakstalk Bulrush          | S1           | G4G5         |                     |                       |
| <i>Schoenoplectus saximontanus</i>                        | A Bulrush                  | S1           | G5           |                     |                       |
| <i>Schoenoplectus subterminalis</i>                       | Swaying Rush               | S1           | G4G5         |                     |                       |
| <i>Schoenoplectus torreyi</i>                             | Torrey's Bulrush           | SH           | G5?          |                     |                       |
| <i>Scirpus divaricatus</i>                                | A Bulrush                  | SH           | G5           |                     |                       |
| <i>Scirpus pallidus</i>                                   | Pale Bulrush               | S2           | G5           |                     |                       |
| <i>Scirpus pedicellatus</i>                               | A Bulrush                  | SH           | G4           |                     |                       |
| <i>Scleria reticularis</i> var. <i>pubescens</i>          | Muhlenberg's Nut-rush      | S1           | G5           |                     |                       |

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| <b>FLOWERING PLANTS (Cont.)</b>          |                         |              |              |                     |                       |
| Scrophularia lanceolata                  | Early Figwort           | SH           | G5           |                     |                       |
| Scutellaria elliptica var. hirsuta       | Hairy Skullcap          | SH           | G5T5         |                     |                       |
| Scutellaria galericulata                 | Marsh Skullcap          | S1           | G5           |                     |                       |
| Sida elliottii                           | Elliott Sida            | S1           | G4G5         |                     |                       |
| Sisyrinchium atlanticum                  | Eastern Blue-eyed Grass | S2           | G5           |                     |                       |
| Smilax illinoensis                       | Carrion Flower          | S2S3         | G4?          |                     |                       |
| Solidago riddellii                       | Riddell's Goldenrod     | S3           | G5           |                     |                       |
| Spermolepis divaricata                   | Rough-fruit Spermolepis | S1           | G5           |                     |                       |
| Sphenopholis pensylvanica                | Swamp Oats              | SH           | G4           |                     |                       |
| Spiraea alba var. alba                   | Meadow-sweet            | S1           | G5T5         |                     |                       |
| Spiraea tomentosa                        | Hardhack                | S1           | G5           |                     |                       |
| Sporobolus airoides                      | Alkali Sacaton          | SH           | G5           |                     |                       |
| Stachys aspera                           | Hedge Nettle            | SH           | G4?          |                     |                       |
| Stenosiphon linifolius                   | Stenosiphon             | S2           | G5           |                     |                       |
| Stylisma pickeringii var. pattersonii    | A Stylisma              | S1           | G4T4         |                     |                       |
| Sullivantia sullivantii                  | Sullivantia             | S2           | G4           |                     |                       |
| Symphoricarpos occidentalis              | Wolfberry               | S1           | G5           |                     |                       |
| Symphyotrichum ciliatum                  | Rayless Alkali Aster    | SH           | G5           |                     |                       |
| Symphyotrichum dumosum var. strictior    | Tradescant Aster        | S2           | G5T4         |                     |                       |
| Symphyotrichum racemosum var. subdumosum | Small White Aster       | S2           | G4G5T3T5Q    |                     |                       |
| Symphyotrichum subulatum var. ligulatum  | Saltmarsh Aster         | S2           | G5           |                     |                       |
| Thalia dealbata                          | Water Canna             | S2           | G4           |                     |                       |
| Thelesperma filifolium                   | Thelesperma             | S2           | G4G5         |                     |                       |
| Tipularia discolor                       | Cranefly Orchid         | S2           | G4G5         |                     |                       |
| Torreyochloa pallida var. pallida        | Pale Manna Grass        | S1           | G5T5?        |                     |                       |
| Tradescantia ozarkana                    | Ozark Spiderwort        | S2           | G3           |                     |                       |
| Tragia cordata                           | Heart-leaved Noseburn   | S2           | G4           |                     |                       |
| Tragia ramosa                            | A Noseburn              | S2           | G5           |                     |                       |
| Trautvetteria caroliniensis              | False Bugbane           | S2           | G5           |                     |                       |
| Trepocarpus aethusae                     | Trepocarpus             | S1           | G4G5         |                     |                       |
| Triadenum tubulosum                      | Marsh St. John's Wort   | S1           | G4?          |                     |                       |
| Trichostema setaceum                     | Blue Curls              | S1           | G5           |                     |                       |
| Tridens flavus var. chapmanii            | A Grass                 | S2           | G5T3         |                     |                       |
| Tridens muticus var. elongatus           | Slim Tridens            | SH           | G5T4?        |                     |                       |
| Trifolium carolinianum                   | Carolina Clover         | SH           | G5           |                     |                       |
| Trifolium stoloniferum                   | Running Buffalo Clover  | S1           | G3           | E                   | E                     |
| Trillium nivale                          | Snow Trillium           | S3?          | G4           |                     |                       |
| Trillium pusillum var. ozarkanum         | Ozark Wake Robin        | S2           | G3T3         |                     |                       |
| Triodanis holzingeri                     | A Venus' Looking Glass  | SH           | G4           |                     |                       |
| Triodanis lamprosperma                   | A Venus' Looking Glass  | S2           | G5?          |                     |                       |
| Turritis glabra                          | Tower Mustard           | SH           | G5           |                     |                       |
| Typha domingensis                        | Southern Cattail        | S1           | G4G5         |                     |                       |
| Ulmus crassifolia                        | Cedar Elm               | S1           | G5           |                     |                       |

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| <b>FLOWERING PLANTS (Cont.)</b>               |                           |              |              |                         |                           |
| Ulmus thomasii                                | Rock Elm                  | S2           | G5           |                         |                           |
| Urtica chamaedryoides                         | Weak Nettle               | S1           | G4G5         |                         |                           |
| Utricularia minor                             | Lesser Bladderwort        | S1           | G5           |                         |                           |
| Utricularia subulata                          | Slender Bladderwort       | S1           | G5           |                         |                           |
| Valerianella ozarkana                         | Ozark Corn Salad          | S2           | G3           |                         |                           |
| Veronica americana                            | American Brooklime        | SH           | G5           |                         |                           |
| Viburnum dentatum                             | Southern Arrow-wood       | S1           | G5           |                         |                           |
| Viburnum lentago                              | Nannyberry                | S1           | G5           |                         |                           |
| Viburnum ozarkense                            | Ozark Arrow Wood          | S2S3         | GNR          |                         |                           |
| Viburnum recognitum                           | Northern Arrow-wood       | S1           | G4G5         |                         |                           |
| Vicia ludoviciana var.<br>leavenworthii       | Louisiana Vetch           | SH           | G5T5         |                         |                           |
| Vicia minutiflora                             | Pygmy-flowered Vetch      | SH           | G5           |                         |                           |
| Viola macloskeyi ssp. pallens                 | Smooth White Violet       | S2           | G5T5         |                         |                           |
| Vitis rotundifolia var.<br>rotundifolia       | Muscadine                 | S1           | G5T5         |                         |                           |
| Waldsteinia fragarioides ssp.<br>fragarioides | Barren Strawberry         | S2           | G5T5         |                         |                           |
| Wolffia borealis                              | Dotted Watermeal          | SU           | G5           |                         |                           |
| Wolffia columbiana                            | Columbia Water-meal       | SU           | G5           |                         |                           |
| Wolffiella gladiata                           | Wolffiella                | S1           | G5           |                         |                           |
| Xyris jupicai                                 | Yellow-eyed-grass         | S1           | G5           |                         |                           |
| Xyris torta                                   | Yellow-eyed Grass         | S1           | G5           |                         |                           |
| Yucca arkansana                               | Arkansas Yucca            | S2           | G5           |                         |                           |
| Yucca glauca                                  | Small Soapweed Yucca      | S2           | G5           |                         |                           |
| Zannichellia palustris var. major             | Horned Pondweed           | S3?          | G5TNR        |                         |                           |
| Zigadenus elegans ssp. glaucus                | White Camas               | S2           | G5T4T5       |                         |                           |
| Zigadenus nuttallii                           | Death Camas               | S1           | G5           |                         |                           |
| Zizania palustris var. interior               | Interior Wild Rice        | SH           | G4G5T4T5     |                         |                           |
| <b>Total Flowering Plant Records:</b>         |                           |              |              |                         |                           |
| <b>467</b>                                    |                           |              |              |                         |                           |
| <b>FLATWORMS</b>                              |                           |              |              |                         |                           |
| Macrocotyla glandulosa                        | Pink Planarian            | S1           | G2G3         |                         |                           |
| Macrocotyla lewisi                            | Lewis' Cave Planarian     | S1           | G1           |                         |                           |
| Sphalloplana evaginata                        | Perryville Cave Planarian | S1           | G1G2         |                         |                           |
| Sphalloplana hubrichti                        | Hubricht's Cave Planarian | S1           | G2G4         |                         |                           |
| <b>Total Flatworm Records: 4</b>              |                           |              |              |                         |                           |
| <b>MOLLUSKS</b>                               |                           |              |              |                         |                           |
| Alasmidonta marginata                         | Elktoe                    | S2           | G4           |                         |                           |
| Alasmidonta viridis                           | Slippershell Mussel       | S2           | G4G5         |                         |                           |
| Amnicola stygia                               | Stygian Cavesnail         | S1           | G1           |                         |                           |
| Anodonta suborbiculata                        | Flat Floater              | S2           | G5           |                         |                           |
| Anodontoides ferussacianus                    | Cylindrical Papershell    | S1           | G5           |                         |                           |
| Antrobia culveri                              | Tumbling Creek Cavesnail  | S1           | G1           | E                       | E                         |
| Arcidens confragosus                          | Rock Pocketbook           | S3           | G4           |                         |                           |
| Campeloma crassulum                           | Ponderous Campeloma       | SU           | G5           |                         |                           |

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| <b>MOLLUSKS (Cont.)</b>        |                      |              |              |                     |                       |
| Cumberlandia monodonta         | Spectaclecase        | S3           | G3           |                     | C                     |
| Cyprogenia aberti              | Western Fanshell     | S2           | G2G3Q        |                     |                       |
| Discus nigrimontanus           | Black Mountain Disc  | S3           | G4           |                     |                       |
| Elliptio crassidens            | Elephantear          | S1           | G5           | E                   |                       |
| Epioblasma florentina curtisii | Curtis Pearlymussel  | S1           | G1T1         | E                   | E                     |
| Epioblasma triquetra           | Snuffbox             | S1           | G3           | E                   |                       |
| Fontigens aldrichi             | Ozark Springsnail    | S4           | G4           |                     |                       |
| Fontigens antroecetes          | Enigmatic Cavesnail  | S2           | G2           |                     |                       |
| Fontigens proserpina           | Proserpine Cavesnail | S1           | G1           |                     |                       |
| Fusconaia ebena                | Ebonyshell           | S1           | G4G5         | E                   |                       |
| Gastrocopta cristata           | Crested Snaggleteeth | S1           | G5           |                     |                       |
| Gastrocopta pellucida          | Slim Snaggleteeth    | S1           | G5           |                     |                       |
| Hendersonia occulta            | Cherrystone Snail    | S3           | G4           |                     |                       |
| Lampsilis abrupta              | Pink Mucket          | S2           | G2           | E                   | E                     |
| Lampsilis higginsii            | Higgins Eye          | S1           | G1           | E                   | E                     |
| Lampsilis rafinesqueana        | Neosho Mucket        | S2           | G2           |                     | C                     |
| Lampsilis reeviana brittsi     | Northern Broken-ray  | S3           | G4T3         |                     |                       |
| Leptodea leptodon              | Scaleshell           | S1           | G1G2         | E                   | E                     |
| Leptoxis arkansensis           | Arkansas Mudalia     | S1           | G1           |                     |                       |
| Ligumia recta                  | Black Sandshell      | S2           | G5           |                     |                       |
| Lioplax sulculosa              | Furrowed Lioplax     | S1           | G5           |                     |                       |
| Mesodon mitchellianus          | Sealed Goblet        | S1           | G4           |                     |                       |
| Micromenetus sampsoni          | A Freshwater Snail   | S2           | G2G3Q        |                     |                       |
| Millerelixa deltoidea          | A Snail              | SU           | G2           |                     |                       |
| Neohelix divesta               | Ozark Whitelip       | S3           | G3G4         |                     |                       |
| Obovaria jacksoniana           | Southern Hickorynut  | S1           | G2           |                     |                       |
| Obovaria olivaria              | Hickorynut           | S3           | G4           |                     |                       |
| Patera perigrapta              | Engraved Bladetooth  | S2           | G5           |                     |                       |
| Plectomerus dombejanus         | Bankclimber          | S3           | G5           |                     |                       |
| Plethobasus cyphus             | Sheepnose            | S2           | G3           | E                   | C                     |
| Pleurocera alveare             | Rough Hornsnail      | S1S3         | G3           |                     |                       |
| Potamilus capax                | Fat Pocketbook       | S1           | G1G2         | E                   | E                     |
| Ptychobranhus occidentalis     | Ouachita Kidneyshell | S3           | G3G4         |                     |                       |
| Pyrgulopsis scalariformis      | Moss Pyrg            | S1           | G1           |                     |                       |
| Quadrula cylindrica cylindrica | Rabbitsfoot          | S1           | G3G4T3       |                     | C                     |
| Quadrula fragosa               | Winged Mapleleaf     | S1           | G1           | E                   | E                     |
| Quadrula nodulata              | Wartyback            | S3           | G4           |                     |                       |
| Simpsonaias ambigua            | Salamander Mussel    | S1           | G3           |                     |                       |
| Somatogyryus depressus         | Sandbar Pebblesnail  | S?           | G2           |                     |                       |
| Somatogyryus rosewateri        | Chert Pebblesnail    | S1           | G1           |                     |                       |
| Stagnicola elodes              | Marsh Pondsnailed    | S2           | G5           |                     |                       |
| Stenotrema stenotrema          | Inland Slitmouth     | S3           | G5           |                     |                       |
| Strobilops affinis             | Eightfold Pinecone   | S2           | G4G5         |                     |                       |
| Toxolasma lividus              | Purple Lilliput      | S2           | G2           |                     |                       |
| Toxolasma texasiensis          | Texas Lilliput       | S3           | G4           |                     |                       |
| Triodopsis cragini             | Post Oak Threetooth  | SH           | G4           |                     |                       |
| Ventridens demissus            | Perforate Dome       | SU           | G5           |                     |                       |



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| <b>MOLLUSKS (Cont.)</b>          |                                      |              |              |                     |                       |
| Vertigo oscariana                | Capital Vertigo                      | S1           | G4           |                     |                       |
| Zonitoides limatulus             | Dull Gloss                           | S1           | G4G5         |                     |                       |
| <b>Total Mollusk Records: 57</b> |                                      |              |              |                     |                       |
| <b>ARACHNIDS</b>                 |                                      |              |              |                     |                       |
| Apochthonius mysterius           | Mystery Cave<br>Pseudoscorpion       | S1           | G1G2         |                     |                       |
| Apochthonius typhlus             | Stone County Cave<br>Pseudoscorpion  | S1           | G1G2         |                     |                       |
| Hesperohermes occidentalis       | Guano Pseudoscorpion                 | S3           | G5           |                     |                       |
| Mundochthonius cavernicolus      | Cavernicolous<br>Pseudoscorpion      | SU           | G1G2         |                     |                       |
| Phanetta subterranea             | Subterranean Cave Spider             | S1           | G5           |                     |                       |
| Porrhomma cavernicola            | Cavernicolous Porrhomma<br>Spider    | S2           | G5           |                     |                       |
| <b>Total Arachnid Records: 6</b> |                                      |              |              |                     |                       |
| <b>CRUSTACEANS</b>               |                                      |              |              |                     |                       |
| Allocranonyx hubrichti           | Hubricht's Long-tailed<br>Amphipod   | S3           | G3           |                     |                       |
| Bactrurus brachycaudus           | Short-tailed Groundwater<br>Amphipod | S4           | G4           |                     |                       |
| Bactrurus hubrichti              | Sword-tail Cave Amphipod             | S1           | G4           |                     |                       |
| Bactrurus pseudomucronatus       | False Sword-tailed Cave<br>Amphipod  | S2           | G2G3         |                     |                       |
| Brackenridgia ashleyi            | Ashley's Isopod                      | S2           | G1G3         |                     |                       |
| Caecidotea antricola             | Cave Isopod                          | S4           | G5           |                     |                       |
| Caecidotea dimorpha              | An Isopod                            | S1S3         | G2G3         |                     |                       |
| Caecidotea fustis                | Fustis Cave Isopod                   | S2           | G2G3         |                     |                       |
| Caecidotea salemensis            | Salem Cave Isopod                    | S2           | G4           |                     |                       |
| Caecidotea serrata               | Serrated Cave Isopod                 | S1           | G1G2         |                     |                       |
| Caecidotea stiladactyla          | Slender-fingered Cave<br>Isopod      | S1           | G3G4         |                     |                       |
| Caecidotea stygia                | Stygian Cave Isopod                  | S1           | G5           |                     |                       |
| Cambarellus puer                 | Cajun Dwarf Crayfish                 | S3?          | G5           |                     |                       |
| Cambarellus shufeldtii           | Shufeldt's Dwarf Crayfish            | S3?          | G5           |                     |                       |
| Cambarus aculabrum               | Cave Crayfish                        | SP           | G1           |                     | E                     |
| Cambarus hubrichti               | Salem Cave Crayfish                  | S3           | G4           |                     |                       |
| Cambarus ludovicianus            | Painted Devil Crayfish               | SU           | G5           |                     |                       |
| Cambarus maculatus               | Freckled Crayfish                    | S3           | G4           |                     |                       |
| Cambarus setosus                 | Bristly Cave Crayfish                | S3           | G3           |                     |                       |
| Diacyclops yeatmani              | Yeatman's Groundwater<br>Copepod     | S1S3         | G2G3         |                     |                       |
| Fallicambarus fodiens            | Digger Crayfish                      | S2S3         | G5           |                     |                       |
| Faxonella clypeata               | Shield Crayfish                      | S2S3         | G5           |                     |                       |
| Lirceus megapodus                | An Isopod                            | SU           | GNR          |                     |                       |
| Macrobrachium ohione             | Freshwater Shrimp                    | S1           | G4           |                     |                       |
| Orconectes eupunctus             | Coldwater Crayfish                   | S2           | G2           |                     |                       |
| Orconectes harrisonii            | Belted Crayfish                      | S3           | G3           |                     |                       |

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| <b>CRUSTACEANS (Cont.)</b>          |                                |              |              |                     |                       |
| <i>Orconectes lancifer</i>          | Shrimp Crayfish                | S1S2         | G5           |                     |                       |
| <i>Orconectes marchandi</i>         | Mammoth Spring Crayfish        | S1S2         | G2           |                     |                       |
| <i>Orconectes meeki meeki</i>       | Meek's Crayfish                | S1           | G4T4         |                     |                       |
| <i>Orconectes peruncus</i>          | Big Creek Crayfish             | S2           | G2           |                     |                       |
| <i>Orconectes quadruncus</i>        | St. Francis River Crayfish     | S2           | G2           |                     |                       |
| <i>Orconectes stygocaneyi</i>       | Caney Mountain Cave Crayfish   | S1           | G1           |                     |                       |
| <i>Orconectes williamsi</i>         | Williams' Crayfish             | S2           | G3G4         |                     |                       |
| <i>Procambarus viaeviridis</i>      | Vernal Crayfish                | S3?          | G5           |                     |                       |
| <i>Stygobromus barri</i>            | Barr's Groundwater Amphipod    | S1S3         | G2G3         |                     |                       |
| <i>Stygobromus clantoni</i>         | Clanton's Groundwater Amphipod | S1S3         | G4           |                     |                       |
| <i>Stygobromus heteropodus</i>      | Pickle Springs Amphipod        | SX           | G1G2         |                     |                       |
| <i>Stygobromus onondagaensis</i>    | Onondaga Cave Amphipod         | S3?          | G5           |                     |                       |
| <i>Stygobromus ozarkensis</i>       | Ozark Cave Amphipod            | S3?          | G4           |                     |                       |
| <i>Stygobromus subtilis</i>         | Subtle Groundwater Amphipod    | S1S3         | G3G4         |                     |                       |
| <i>Triops longicaudatus</i>         | Tadpole Shrimp                 | SU           | G5           |                     |                       |
| <b>Total Crustacean Records: 41</b> |                                |              |              |                     |                       |
| <b>MILLIPEDES</b>                   |                                |              |              |                     |                       |
| <i>Causeyella dendropus</i>         | Causeyella Cave Millipede      | S2           | G1G3         |                     |                       |
| <i>Chaetaspis aleyorum</i>          | Aleys' Cave Millipede          | S1           | G1           |                     |                       |
| <i>Tingupa pallida</i>              | Tingupa Cave Millipede         | S4           | G4           |                     |                       |
| <i>Zosteractis interminata</i>      | Zosteractis Cave Millipede     | SU           | G2G3         |                     |                       |
| <b>Total Millipede Records: 4</b>   |                                |              |              |                     |                       |
| <b>INSECTS</b>                      |                                |              |              |                     |                       |
| <i>Acroneuria ozarkensis</i>        | Ozark Stone                    | S2           | G2           |                     |                       |
| <i>Agapetus artesus</i>             | Artesian Agapetus Caddisfly    | S3           | G3           |                     |                       |
| <i>Aleochara speculicollis</i>      | A Staphylinid Beetle           | SU           | GNR          |                     |                       |
| <i>Allocapnia pygmaea</i>           | Pygmy Snowfly                  | S3           | G5           |                     |                       |
| <i>Alloperla hamata</i>             | Barbed Sallfly                 | S3           | G4           |                     |                       |
| <i>Alloperla leonarda</i>           | Truncate Sallfly               | S3           | G4           |                     |                       |
| <i>Amblytropidia mysteca</i>        | A Glade Grasshopper            | SU           | G5           |                     |                       |
| <i>Amphiagrion saucium</i>          | Eastern Red Damsel             | S2           | G5           |                     |                       |
| <i>Andrena beameri</i>              | An Andrenid Bee                | S3           | GNR          |                     |                       |
| <i>Argia alberta</i>                | Paiute Dancer                  | S1           | G4           |                     |                       |
| <i>Arigomphus maxwelli</i>          | Bayou Clubtail                 | SU           | G5           |                     |                       |
| <i>Arrhopalites clarus</i>          | Clarus Cave Springtail         | S3           | G4           |                     |                       |
| <i>Attaneuria ruralis</i>           | Giant Stone                    | S3           | G4           |                     |                       |
| <i>Baetisca obesa</i>               | A Mayfly                       | S3           | G5           |                     |                       |
| <i>Beameria venosa</i>              | A Concealed-tymbal Cicada      | S3           | GNR          |                     |                       |
| <i>Biblopectus chickasaw</i>        | A Staphylinid Beetle           | SU           | GNR          |                     |                       |
| <i>Calephelis borealis</i>          | Northern Metalmark             | S1           | G3G4         |                     |                       |
| <i>Calephelis muticum</i>           | Swamp Metalmark                | S3           | G3           |                     |                       |

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| <b>INSECTS (Cont.)</b>          |                                 |              |              |                     |                       |
| Catocala marmorata              | Marbled Underwing Moth          | S3           | G3G4         |                     |                       |
| Catocala pretiosa texarkana     | Precious Underwing Moth         | S3?          | G4T4         |                     |                       |
| Ceratopsyche piatrix            | A Net-spinning Caddisfly        | S4           | G4           |                     |                       |
| Chalybion zimmermanni           | A Blue Mud Dauber               | SU           | GNRTNR       |                     |                       |
| Cicindela celeripes             | Swift Tiger Beetle              | S1           | G1G3         |                     |                       |
| Cicindela circumpecta johnsonii | Saline Spring Tiger Beetle      | S1           | G5T5         |                     |                       |
| Cicindela pruinina              | Loamy-ground Tiger Beetle       | S1           | GNR          |                     |                       |
| Conocephalus saltans            | Prairie Meadow Katydid          | S3           | GNR          |                     |                       |
| Deinopsis virginiana            | A Staphylinid Beetle            | SU           | GNR          |                     |                       |
| Derops divalis                  | A Staphylinid Beetle            | S3           | GNR          |                     |                       |
| Euphyes dukesi                  | Duke's Skipper                  | S1           | G3           |                     |                       |
| Formica creightoni              | Creighton's Slavemaking Ant     | S3           | GNR          |                     |                       |
| Formica fossiceps               | An Ant                          | SU           | GNR          |                     |                       |
| Formica querquetulana           | An Ant                          | S3           | GNR          |                     |                       |
| Gennadota canadensis            | A Staphylinid Beetle            | SU           | GNR          |                     |                       |
| Glyphopsyche missouri           | Missouri Glyphopsyche Caddisfly | S1           | G1           |                     |                       |
| Gomphus fraternus               | Midland Clubtail                | SU           | G5           |                     |                       |
| Gomphus ventricosus             | Skillet Clubtail                | SU           | G3           |                     |                       |
| Gryllotalpa major               | Prairie Mole Cricket            | S3           | G3           |                     |                       |
| Hesperia ottoe                  | Ottoe Skipper                   | S1           | G3G4         |                     |                       |
| Hesperus stehri                 | A Staphylinid Beetle            | SU           | GNR          |                     |                       |
| Hydroperla fugitans             | Austin Springfly                | S3           | G3           |                     |                       |
| Inscudderia taxodii             | Bald Cypress Katydid            | S1           | GNR          |                     |                       |
| Isoperla burksi                 | Banded Stripetail               | S3           | G4           |                     |                       |
| Isoperla longiseta              | Plains Stripetail               | SX           | G5           |                     |                       |
| Lasia purpurata                 | Purple Small-headed Fly         | SU           | GNR          |                     |                       |
| Leptysma marginicollis          | Cattail Toothpick Grasshopper   | S2S3         | G5           |                     |                       |
| Leucotrichia pictipes           | A Micro Caddisfly               | S3           | G5           |                     |                       |
| Libellula auripennis            | Golden-winged Skimmer           | SU           | G5           |                     |                       |
| Lordithon niger                 | A Staphylinid Beetle            | S3           | GU           |                     |                       |
| Lytrosis permagnaria            | Geometrid Moth                  | SU           | G3G4         |                     |                       |
| Melanoplus fasciatus            | Huckleberry Grasshopper         | S3           | G5           |                     |                       |
| Melanoplus impudicus            | Immodest Grasshopper            | S3           | G4G5         |                     |                       |
| Melanoplus packardii            | Packard's Grasshopper           | S2           | G5           |                     |                       |
| Melanoplus punctulatus griseus  | Grizzly Grasshopper             | SU           | G4T4         |                     |                       |
| Melanoplus viridipes viridipes  | Green-legged Grasshopper        | S3           | G4           |                     |                       |
| Melissodes intorta              | A Callirhoe Bee                 | S1           | GNR          |                     |                       |
| Mermiria picta                  | Mermiria Grasshopper            | S3           | G5           |                     |                       |
| Merope tuber                    | A Meropid Scorpionfly           | S3           | G3G5         |                     |                       |
| Metaleptea brevicornis          | Short-horned Grasshopper        | S4           | G5           |                     |                       |
| Nehalennia gracilis             | Sphagnum Sprite                 | S1?          | G5           |                     |                       |
| Nehalennia irene                | Sedge Sprite                    | S1           | G5           |                     |                       |
| Neoconocephalus bivocatus       | Two-voiced Conehead Katydid     | S3           | GNR          |                     |                       |

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| <b>INSECTS (Cont.)</b>        |  |              |              |                         |                           |
| Neoconocephalus exiliscanorus | Slightly-musical Conehead<br>Katydid       | S3           | GNR          |                         |                           |
| Neoconocephalus lyristes      | Bog Conehead Katydid                       | S3           | GNR          |                         |                           |
| Neoconocephalus retusus       | Round-tipped Conehead<br>Katydid           | S4?          | GNR          |                         |                           |
| Neoperla carlsoni             | Spiny Stone                                | S3?          | G4           |                         |                           |
| Neotrichia kitae              | Kite's Neotrichian<br>Caddisfly            | SU           | GU           |                         |                           |
| Neotridactylus apicalis       | Larger Pygmy Grasshopper                   | SU           | GNR          |                         |                           |
| Nicrophorus americanus        | American Burying Beetle                    | SH           | G2G3         | E                       | E                         |
| Ochrotrichia contorta         | Contorted Ochrotrichian<br>Micro Caddisfly | SU           | G1G2         |                         |                           |
| Oecleus chrisjohni            | A Cixiid Planthopper                       | SU           | GNR          |                         |                           |
| Oncopodura hoffi              | Hoff's Cave Springtail                     | S1S3         | G1G2         |                         |                           |
| Oxybleptes kiteleyi           | A Staphylinid Beetle                       | SU           | GNR          |                         |                           |
| Pardalophora saussurei        | A Glade Grasshopper                        | SU           | G5           |                         |                           |
| Paroxya hoosieri              | Hoosier Grasshopper                        | S1           | G5           |                         |                           |
| Pentacora signoreti           | A Shore Bug                                | S1           | GNR          |                         |                           |
| Phoetaliotes nebrascensis     | Large-headed Grasshopper                   | S3           | G5           |                         |                           |
| Phrixocnemis truculentus      | Truculent Camel Cricket                    | SU           | GNR          |                         |                           |
| Phyllobrotica lengi           | A Leaf Beetle                              | SU           | GNR          |                         |                           |
| Phyllobrotica nigrirarsus     | A Leaf Beetle                              | SU           | GNR          |                         |                           |
| Phyllobrotica physostegiae    | A Leaf Beetle                              | S4?          | GNR          |                         |                           |
| Ponera exotica                | An Ant                                     | S3           | GNR          |                         |                           |
| Prostoia similis              | Longhorn Forestfly                         | S3           | G5           |                         |                           |
| Pseudomasaris occidentalis    | A Pollen Wasp                              | S3           | GNR          |                         |                           |
| Pseudosinella espana          | Espana Cave Springtail                     | S3           | G2G3         |                         |                           |
| Psinidia fenestralis          | Sand Grasshopper                           | S2S3         | G5           |                         |                           |
| Satyrodes appalachia leeuwi   | Appalachian Eyed Brown                     | S1           | G4T4         |                         |                           |
| Sepedophilus campbelli        | A Staphylinid Beetle                       | SU           | GNR          |                         |                           |
| Serratella frisoni            | Frison's Seratellan Mayfly                 | S2           | G4           |                         |                           |
| Sinella avita                 | Avita Cave Springtail                      | SU           | G3G4         |                         |                           |
| Sinella barri                 | Barr's Cave Springtail                     | SU           | G5           |                         |                           |
| Somatochlora hineana          | Hine's Emerald                             | S2           | G2G3         | E                       | E                         |
| Somatochlora ozarkensis       | Ozark Emerald                              | S2S3         | G3           |                         |                           |
| Somatochlora provocans        | Treetop Emerald                            | S1           | G4           |                         |                           |
| Speyeria diana                | Diana Fritillary                           | SA           | G3G4         |                         |                           |
| Speyeria idalia               | Regal Fritillary                           | S3           | G3           |                         |                           |
| Stenonema bednariki           | A Heptageniid Mayfly                       | S3           | G2G4         |                         |                           |
| Stethophyma celatum           | Sedge Grasshopper                          | S3           | G4           |                         |                           |
| Stylurus intricatus           | Brimstone Clubtail                         | S1S2         | G4           |                         |                           |
| Stylurus notatus              | Elusive Clubtail                           | S2S3         | G3           |                         |                           |
| Telebasis byersi              | Duckweed Firetail                          | S1           | G5           |                         |                           |
| Telebasis salva               | Desert Firetail                            | SU           | G5           |                         |                           |
| Tettigidea armata             | Spined Grouse Locust                       | S2S3         | G5           |                         |                           |
| Tomocerus missus              | Missus Cave Springtail                     | SU           | G4           |                         |                           |
| Trimerotropis maritima        | Seaside Grasshopper                        | SH           | G5           |                         |                           |
| Xenochalepus potomaca         | A Leaf Beetle                              | SU           | GNR          |                         |                           |

| <u>SCIENTIFIC NAME</u>           | <u>COMMON NAME</u>               | <u>SRANK</u> | <u>GRANK</u> | <u>STATE STATUS</u> | <u>FEDERAL STATUS</u> |
|----------------------------------|----------------------------------|--------------|--------------|---------------------|-----------------------|
| <b>INSECTS (Cont.)</b>           |                                  |              |              |                     |                       |
| Xenotrechus condei               | Northern Xenotrechus Cave Beetle | S1           | G1G2         |                     |                       |
| Xenotrechus denticollis          | Southern Xenotrechus Cave Beetle | S1           | G1G2         |                     |                       |
| Xylodromus capito                | A Staphylinid Beetle             | SU           | GNR          |                     |                       |
| <b>Total Insect Records: 108</b> |                                  |              |              |                     |                       |
| <b>FISH</b>                      |                                  |              |              |                     |                       |
| Acipenser fulvescens             | Lake Sturgeon                    | S1           | G3G4         | E                   |                       |
| Alosa alabamae                   | Alabama Shad                     | S2           | G3           |                     |                       |
| Amblyopsis rosae                 | Ozark Cavefish                   | S2           | G3           | E                   | T                     |
| Ameiurus nebulosus               | Brown Bullhead                   | S3?          | G5           |                     |                       |
| Ammocrypta clara                 | Western Sand Darter              | S2S3         | G3           |                     |                       |
| Ammocrypta vivax                 | Scaly Sand Darter                | S3           | G5           |                     |                       |
| Atractosteus spatula             | Alligator Gar                    | SU           | G3G4         |                     |                       |
| Carpionodes velifer              | Highfin Carpsucker               | S2           | G4G5         |                     |                       |
| Centrarchus macropterus          | Flier                            | S3           | G5           |                     |                       |
| Cottus sp. cf. carolinae         | Grotto Sculpin                   | S1           | G1G2Q        |                     | C                     |
| Crystallaria asprella            | Crystal Darter                   | S1           | G3           | E                   |                       |
| Cyprinella camura                | Bluntnose Shiner                 | S2S3         | G5           |                     |                       |
| Erimyzon sucetta                 | Lake Chubsucker                  | S2           | G5           |                     |                       |
| Etheostoma cragini               | Arkansas Darter                  | S3S4         | G3G4         |                     | C                     |
| Etheostoma euzonum erizonum      | Current Saddled Darter           | S3           | G3G4T3T4     |                     |                       |
| Etheostoma euzonum euzonum       | Arkansas Saddled Darter          | S2           | G3G4T3T4     |                     |                       |
| Etheostoma fusiforme             | Swamp Darter                     | S1           | G5           | E                   |                       |
| Etheostoma histrio               | Harlequin Darter                 | S2           | G5           | E                   |                       |
| Etheostoma microperca            | Least Darter                     | S2           | G5           |                     |                       |
| Etheostoma nianguae              | Niangua Darter                   | S2           | G2           | E                   | T                     |
| Etheostoma parvipinne            | Goldstripe Darter                | S1           | G4G5         | E                   |                       |
| Etheostoma whipplei              | Redfin Darter                    | S1           | G4           | E                   |                       |
| Forbesichthys agassizi           | Spring Cavefish                  | S1           | G4G5         | E                   |                       |
| Fundulus chrysotus               | Golden Topminnow                 | S1           | G5           |                     |                       |
| Fundulus dispar                  | Starhead Topminnow               | S2           | G4           |                     |                       |
| Fundulus kansae                  | Northern Plains Killifish        | S2           | GNR          |                     |                       |
| Fundulus sciadicus               | Plains Topminnow                 | S3           | G4           |                     |                       |
| Hybognathus argyritis            | Western Silvery Minnow           | S2           | G4           |                     |                       |
| Hybognathus hankinsoni           | Brassy Minnow                    | S3           | G5           |                     |                       |
| Hybognathus hayi                 | Cypress Minnow                   | S1           | G5           | E                   |                       |
| Hybognathus nuchalis             | Mississippi Silvery Minnow       | S3S4         | G5           |                     |                       |
| Hybognathus placitus             | Plains Minnow                    | S2           | G4           |                     |                       |
| Hybopsis amnis                   | Pallid Shiner                    | SX           | G4           |                     |                       |
| Ichthyomyzon gagei               | Southern Brook Lamprey           | S2S3         | G5           |                     |                       |
| Lampetra appendix                | American Brook Lamprey           | S2           | G4           |                     |                       |
| Lepomis marginatus               | Dollar Sunfish                   | S2           | G5           |                     |                       |
| Lepomis symmetricus              | Bantam Sunfish                   | S2           | G5           |                     |                       |
| Macrhybopsis gelida              | Sturgeon Chub                    | S3           | G3           |                     |                       |
| Mugil cephalus                   | Striped Mullet                   | SA           | G5           |                     |                       |

| <u>SCIENTIFIC NAME</u>        | <u>COMMON NAME</u>  | <u>SRANK</u> | <u>GRANK</u> | <u>STATE STATUS</u> | <u>FEDERAL STATUS</u> |
|-------------------------------|---------------------|--------------|--------------|---------------------|-----------------------|
| <b>FISH (Cont.)</b>           |                     |              |              |                     |                       |
| Notropis buchanani            | Ghost Shiner        | S2           | G5           |                     |                       |
| Notropis chalybaeus           | Ironcolor Shiner    | S1           | G4           |                     |                       |
| Notropis heterolepis          | Blacknose Shiner    | S2           | G4           |                     |                       |
| Notropis maculatus            | Taillight Shiner    | S1           | G5           | E                   |                       |
| Notropis ozarcanus            | Ozark Shiner        | S2           | G3           |                     |                       |
| Notropis sabinae              | Sabine Shiner       | S1           | G4           | E                   |                       |
| Notropis texanus              | Weed Shiner         | S3           | G5           |                     |                       |
| Notropis topeka               | Topeka Shiner       | S1           | G3           | E                   | E                     |
| Noturus eleutherus            | Mountain Madtom     | S1S2         | G4           | E                   |                       |
| Noturus flavater              | Checkered Madtom    | S3S4         | G3G4         |                     |                       |
| Noturus placidus              | Neosho Madtom       | S1           | G2           | E                   | T                     |
| Opsopoeodus emiliae           | Pugnose Minnow      | S4           | G5           |                     |                       |
| Percina copelandi             | Channel Darter      | S3           | G4           |                     |                       |
| Percina cymatotaenia          | Bluestripe Darter   | S2           | G2           |                     |                       |
| Percina nasuta                | Longnose Darter     | S1           | G3           | E                   |                       |
| Percina shumardi              | River Darter        | S3           | G5           |                     |                       |
| Percina uranidea              | Stargazing Darter   | S2           | G3           |                     |                       |
| Percopsis omiscomaycus        | Trout-perch         | S1?          | G5           |                     |                       |
| Pimephales tenellus parviceps | Eastern Slim Minnow | S2S3         | G4T2T3       |                     |                       |
| Pimephales tenellus tenellus  | Western Slim Minnow | S3           | G4T4         |                     |                       |
| Platygobio gracilis           | Flathead Chub       | S1           | G5           | E                   |                       |
| Scaphirhynchus albus          | Pallid Sturgeon     | S1           | G2           | E                   | E                     |
| Typhlichthys subterraneus     | Southern Cavefish   | S2S3         | G3G4         |                     |                       |
| Umbra limi                    | Central Mudminnow   | S1           | G5           | E                   |                       |

**Total Fish Records: 63**

#### **AMPHIBIANS**

|                                      |                          |      |          |   |   |
|--------------------------------------|--------------------------|------|----------|---|---|
| Ambystoma annulatum                  | Ringed Salamander        | S3   | G4       |   |   |
| Ambystoma talpoideum                 | Mole Salamander          | S2   | G5       |   |   |
| Ambystoma tigrinum                   | Eastern Tiger Salamander | SU   | G5       |   |   |
| Amphiuma tridactylum                 | Three-toed Amphiuma      | S2   | G5       |   |   |
| Anaxyrus cognatus                    | Great Plains Toad        | SU   | G5       |   |   |
| Cryptobranchus alleganiensis         | Eastern Hellbender       | S1   | G3G4T3T4 | E |   |
| Cryptobranchus alleganiensis bishopi | Ozark Hellbender         | S1   | G3G4T2Q  | E | E |
| Eurycea spelaea                      | Grotto Salamander        | S2S3 | G4       |   |   |
| Hemidactylium scutatum               | Four-toed Salamander     | S4   | G5       |   |   |
| Lithobates areolatus circulosus      | Northern Crawfish Frog   | S3   | G4T4     |   |   |
| Lithobates pipiens                   | Northern Leopard Frog    | S2   | G5       |   |   |
| Lithobates sylvaticus                | Wood Frog                | S3   | G5       |   |   |
| Necturus maculosus louisianensis     | Red River Mudpuppy       | SU   | G5T4     |   |   |
| Necturus maculosus maculosus         | Common Mudpuppy          | SU   | G5T5     |   |   |
| Pseudacris illinoensis               | Illinois Chorus Frog     | S2   | G5T3     |   |   |
| Scaphiopus holbrookii                | Eastern Spadefoot        | S2   | G5       |   |   |

**Total Amphibian Records: 16**

| <u>SCIENTIFIC NAME</u>                              | <u>COMMON NAME</u>           | <u>SRANK</u> | <u>GRANK</u> | <u>STATE STATUS</u> | <u>FEDERAL STATUS</u> |
|---|------------------------------|--------------|--------------|---------------------|-----------------------|
| <b>REPTILES</b>                                     |                              |              |              |                     |                       |
| Cemophora coccinea copei                            | Northern Scarletsnake        | S2S3         | G5T5         |                     |                       |
| Clonophis kirtlandii                                | Kirtland's Snake             | S1           | G2           |                     |                       |
| Crotaphytus collaris                                | Eastern Collared Lizard      | S4           | G5           |                     |                       |
| Deirochelys reticularia miaria                      | Western Chicken Turtle       | S1           | G5T5         | E                   |                       |
| Emydoidea blandingii                                | Blanding's Turtle            | S1           | G4           | E                   |                       |
| Farancia abacura reinwardtii                        | Western Mudsnae              | S2           | G5T5         |                     |                       |
| Heterodon gloydi                                    | Dusty Hog-nosed Snake        | S1           | G5T3T4Q      |                     |                       |
| Heterodon nasicus                                   | Plains Hog-nosed Snake       | SX           | G5           |                     |                       |
| Kinosternon flavescens                              | Yellow Mud Turtle            | S1           | G5           | E                   |                       |
| Macrochelys temminckii                              | Alligator Snapping Turtle    | S2           | G3G4         |                     |                       |
| Nerodia cyclopion                                   | Mississippi Green Watersnake | SX           | G5           | E                   |                       |
| Opheodrys vernalis                                  | Smooth Greensnake            | SX           | G5           |                     |                       |
| Pantherophis vulpinus                               | Western Foxsnake             | S1           | G5           |                     |                       |
| Phrynosoma cornutum                                 | Texas Horned Lizard          | S2           | G4G5         |                     |                       |
| Plestiodon obsoletus                                | Great Plains Skink           | S2           | G5           |                     |                       |
| Plestiodon septentrionalis obtusirostris            | Southern Prairie Skink       | S3           | G5T5         |                     |                       |
| Plestiodon septentrionalis septentrionalis          | Northern Prairie Skink       | S3           | G5T5         |                     |                       |
| Sistrurus catenatus catenatus                       | Eastern Massasauga           | S1           | G3G4T3T4Q    | E                   | C                     |
| <b>Total Reptile Records: 18</b>                    |                              |              |              |                     |                       |
| <b>BIRDS (See Appendix A for Tracking Criteria)</b> |                              |              |              |                     |                       |
| Accipiter striatus                                  | Sharp-shinned Hawk           | S2           | G5           |                     |                       |
| Anhinga anhinga                                     | Anhinga                      | SU           | G5           |                     |                       |
| Ardea alba  | Great Egret                  | S3           | G5           |                     |                       |
| Asio flammeus                                       | Short-eared Owl              | S2           | G5           |                     |                       |
| Asio otus   | Long-eared Owl               | SU           | G5           |                     |                       |
| Athene cunicularia                                  | Burrowing Owl                | SX           | G4           |                     |                       |
| Bonasa umbellus                                     | Ruffed Grouse                | SU           | G5           |                     |                       |
| Botaurus lentiginosus                               | American Bittern             | S1           | G4           | E                   |                       |
| Buteo swainsoni                                     | Swainson's Hawk              | S2           | G5           |                     |                       |
| Campephilus principalis                             | Ivory-billed Woodpecker      | SX           | G1           |                     | E                     |
| Certhia americana                                   | Brown Creeper                | SU           | G5           |                     |                       |
| Chlidonias niger                                    | Black Tern                   | SX           | G4           |                     |                       |
| Circus cyaneus                                      | Northern Harrier             | S2           | G5           | E                   |                       |
| Cistothorus palustris                               | Marsh Wren                   | S3           | G5           |                     |                       |
| Coragyps atratus                                    | Black Vulture                | S3           | G5           |                     |                       |
| Corvus corax  | Common Raven                 | SX           | G5           |                     |                       |
| Coturnicops noveboracensis                          | Yellow Rail                  | SU           | G4           |                     |                       |
| Cygnus buccinator                                   | Trumpeter Swan               | S1           | G4           |                     |                       |
| Dendroica cerulea                                   | Cerulean Warbler             | S2S3         | G4           |                     |                       |
| Dendroica pensylvanica                              | Chestnut-sided Warbler       | SU           | G5           |                     |                       |
| Dendroica virens                                    | Black-throated Green Warbler | SU           | G5           |                     |                       |
| Egretta caerulea                                    | Little Blue Heron            | S3           | G5           |                     |                       |
| Egretta thula                                       | Snowy Egret                  | S1           | G5           | E                   |                       |

| <u>SCIENTIFIC NAME</u>         | <u>COMMON NAME</u>             | <u>SRANK</u> | <u>GRANK</u> | <u>STATE STATUS</u> | <u>FEDERAL STATUS</u> |
|--------------------------------|--------------------------------|--------------|--------------|---------------------|-----------------------|
| <b>BIRDS (Cont.)</b>           |                                |              |              |                     |                       |
| Elanoides forficatus           | Swallow-tailed Kite            | SX           | G5           |                     |                       |
| Empidonax minimus              | Least Flycatcher               | SU           | G5           |                     |                       |
| Falco peregrinus               | Peregrine Falcon               | S1           | G4           | E                   |                       |
| Gallinula chloropus            | Common Moorhen                 | S2           | G5           |                     |                       |
| Geococcyx californianus        | Greater Roadrunner             | S3           | G5           |                     |                       |
| Grus canadensis                | Sandhill Crane                 | S1           | G5           |                     |                       |
| Haliaeetus leucocephalus       | Bald Eagle                     | S3           | G5           |                     |                       |
| Ictinia mississippiensis       | Mississippi Kite               | S3           | G5           |                     |                       |
| Ixobrychus exilis              | Least Bittern                  | S3           | G5           |                     |                       |
| Lanius ludovicianus            | Loggerhead Shrike              | S2           | G4           |                     |                       |
| Laterallus jamaicensis         | Black Rail                     | SU           | G4           |                     |                       |
| Limnothlypis swainsonii        | Swainson's Warbler             | S2           | G4           | E                   |                       |
| Nycticorax nycticorax          | Black-crowned Night-heron      | S3           | G5           |                     |                       |
| Pandion haliaetus              | Osprey                         | S2           | G5           |                     |                       |
| Passerina ciris                | Painted Bunting                | S3           | G5           |                     |                       |
| Peucaea aestivalis             | Bachman's Sparrow              | S1           | G3           | E                   |                       |
| Picoides borealis              | Red-cockaded Woodpecker        | SX           | G3           |                     | E                     |
| Porzana carolina               | Sora                           | S2           | G5           |                     |                       |
| Rallus elegans                 | King Rail                      | S1           | G4           | E                   |                       |
| Rallus limicola                | Virginia Rail                  | S2           | G5           |                     |                       |
| Sitta pusilla                  | Brown-headed Nuthatch          | SX           | G5           |                     |                       |
| Spinus pinus                   | Pine Siskin                    | SU           | G5           |                     |                       |
| Sterna antillarum athalassos   | Interior Least Tern            | S1           | G4T2Q        | E                   | E                     |
| Tympanuchus cupido             | Greater Prairie-chicken        | S1           | G4           | E                   |                       |
| Tyto alba                      | Barn Owl                       | S3           | G5           |                     |                       |
| Vermivora bachmanii            | Bachman's Warbler              | SX           | GH           |                     | E                     |
| Xanthocephalus xanthocephalus  | Yellow-headed Blackbird        | S3           | G5           |                     |                       |
| <b>Total Bird Records: 50</b>  |                                |              |              |                     |                       |
| <b>MAMMALS</b>                 |                                |              |              |                     |                       |
| Bos bison                      | American Bison                 | SX           | G4           |                     |                       |
| Canis lupus                    | Gray Wolf                      | SX           | G4           |                     | E                     |
| Canis rufus                    | Red Wolf                       | SX           | G1Q          |                     | E                     |
| Cervus elaphus                 | Elk or Wapiti                  | S?           | G5           |                     |                       |
| Corynorhinus rafinesquii       | Rafinesque's Big-eared Bat     | SU           | G3G4         |                     |                       |
| Corynorhinus townsendii ingens | Ozark Big-eared Bat            | SX           | G4T1         | E                   | E                     |
| Ictidomys tridecemlineatus     | Thirteen-lined Ground Squirrel | SU           | G5           |                     |                       |
| Lasionycteris noctivagans      | Silver-haired Bat              | SU           | G5           |                     |                       |
| Lasiurus seminolus             | Seminole Bat                   | SA           | G5           |                     |                       |
| Lepus californicus             | Black-tailed Jackrabbit        | S1           | G5           | E                   |                       |
| Lepus townsendii               | White-tailed Jackrabbit        | SX           | G5           |                     |                       |
| Mustela frenata                | Long-tailed Weasel             | S3           | G5           |                     |                       |
| Mustela nivalis                | Least Weasel                   | S3           | G5           |                     |                       |
| Myotis austroriparius          | Southeastern Bat               | S1           | G3G4         |                     |                       |
| Myotis grisescens              | Gray Bat                       | S3           | G3           | E                   | E                     |



| <u>SCIENTIFIC NAME</u>          | <u>COMMON NAME</u>             | <u>SRANK</u> | <u>GRANK</u> | <u>STATE<br/>STATUS</u> | <u>FEDERAL<br/>STATUS</u> |
|---------------------------------|--------------------------------|--------------|--------------|-------------------------|---------------------------|
| <b>MAMMALS (Cont.)</b>          |                                |              |              |                         |                           |
| Myotis leibii                   | Eastern Small-footed<br>Myotis | SU           | G3           |                         |                           |
| Myotis sodalis                  | Indiana Bat                    | S1           | G2           | E                       | E                         |
| Ochrotomys nuttalli             | Golden Mouse                   | S3           | G5           |                         |                           |
| Oryzomys palustris              | Rice Rat                       | SU           | G5           |                         |                           |
| Perognathus flavescens          | Plains Pocket Mouse            | S2           | G5           |                         |                           |
| Peromyscus gossypinus           | Cotton Mouse                   | S2           | G5           |                         |                           |
| Poliocitellus franklinii        | Franklin's Ground Squirrel     | S2S3         | G5           |                         |                           |
| Puma concolor                   | Mountain Lion                  | SX           | G5           |                         |                           |
| Reithrodontomys montanus        | Plains Harvest Mouse           | S2           | G5           |                         |                           |
| Spilogale putorius interrupta   | Plains Spotted Skunk           | S1           | G5T4         | E                       |                           |
| Sylvilagus aquaticus            | Swamp Rabbit                   | S2           | G5           |                         |                           |
| Tadarida brasiliensis           | Brazilian Free-tailed Bat      | SA           | G5           |                         |                           |
| Taxidea taxus                   | American Badger                | SU           | G5           |                         |                           |
| <b>Total Mammal Records: 28</b> |                                |              |              |                         |                           |

**Total Records Processed: 1060**

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### FLOWERING PLANTS

#### Taxonomic Authority:

Flora of Missouri Database. 2009. Flora of Missouri Project. Missouri Botanical Garden. St. Louis, Missouri.

## **FLOWERING PLANTS (*Cont.*)**

### For Additional Information:

Denison, E. 2008. Missouri wildflowers: a field guide to wildflowers of Missouri. Sixth ed. Missouri Department of Conservation. Jefferson City, Missouri. 280 pp.

Smith, T.E. 2000. Missouri Plants of Conservation Concern. Missouri Dept. of Conservation. Jefferson City, Missouri. 47pp.

Steyermark, J.A. 1963. Flora of Missouri. Iowa State Press. Ames, Iowa. 1728 pp.

Summers, B. 1996. Missouri orchids. Missouri Department of Conservation. Jefferson City, Missouri. 112 pp.

Yatskievych, G. 1999. Steyermark's Flora of Missouri, Vol. 1, Revised ed. Missouri Department of Conservation. Jefferson City, Missouri. 1991 pp.

Yatskievych, G. 2006. Steyermark's Flora of Missouri, Vol. 2, Revised ed. Missouri Botanical Garden Press. St. Louis, Missouri. 1181 pp.

## **FLATWORMS**

### For Additional Information:

Huggins, D.G., P.M. Liechti and L.C. Ferrington, Jr., eds. 1985. Guide to the freshwater invertebrates of the Midwest. Kansas Biological Survey, Technical Publication No. 11. 221 pp.

## **MOLLUSKS**

### Taxonomic Authority:

Turgeon, D.D., A.E. Bogan, E.V. Coan, W.K. Emerson, W.G. Lyons, W.L. Pratt, C.F.E. Roper, A. Scheltama, F.G. Thompson and J.D. Williams. 1998. Common and scientific names of aquatic invertebrates from the United States and Canada: mollusks, 2nd ed. American Fisheries Society Special Publication No. 26. 526 pp.

### For Additional Information:

Oesch, R.D. 1995. Missouri naiades: a guide to the mussels of Missouri. Missouri Department of Conservation. Jefferson City, Missouri. 270 pp.

Wu, S.K., R.D. Oesch and M.E. Gordon. 1997. Missouri aquatic snails. Missouri Department of Conservation. Jefferson City, Missouri. Natural History Series, No. 5. 97 pp.

## **CRUSTACEANS**

### Taxonomic Authority:

Williams, A.B., et. al. 1989. A list of common and scientific names of decapod crustaceans from America north of Mexico. American Fisheries Society special publication, No. 17. 77 pp.

### For Additional Information:

Pflieger, W.L. 1996. The crayfishes of Missouri. Missouri Department of Conservation. Jefferson City, Missouri. 152 pp.

## **INSECTS**

### Taxonomic Authority:

Poole, R.W. and P. Gentili (Eds.). 1996-97. *Nomina insecta nearctica*. A checklist of the insects of North America. Entomological Information Services. Rockville, M.D. Four volumes.

### For Additional Information:

Heitzman, J.R. and J.E. Heitzman. 1987. *Butterflies and moths of Missouri*. Missouri Department of Conservation. Jefferson City, Missouri. 385 pp.

## **FISH**

### Taxonomic Authority:

Nelson, J.S., E.J. Crossman, H. Espinosa-Perez, L.T. Findlay, C.R. Gilbert, R. N. Lea, and J.D. Williams. 2004. *Common and Scientific Names of Fishes from the United States, Canada, and Mexico*. Sixth Edition. American Fisheries Society, Special Publication 29. Bethesda, Maryland.

### For Additional Information:

Pflieger, W.L. 1997. *The fishes of Missouri Revised Edition*. Missouri Department of Conservation. Jefferson City, Missouri. 372 pp.

## **AMPHIBIANS AND REPTILES**

### Taxonomic Authority:

Crother, B.I. (ed) and Committee. 2008. *Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with comments regarding confidence in our understanding* (6th edition). Society for the Study of Amphibians and Reptiles. Herpetological Circular No. 37.

### For Additional Information:

Johnson, T.R. 2000. *The Amphibians and Reptiles of Missouri*. Missouri Department of Conservation. Jefferson City, Missouri. 400 pp.

Daniel, R.E. and B.S. Edmond. 2007. *Atlas of Missouri Amphibians and Reptiles for 2007*.  
<<http://atlas.moherp.org/pubs/atlas07.pdf>>

Conant, R. and J.T. Collins. 1998. *A field guide to reptiles and amphibians of eastern and central North America*. Third ed. expanded. Houghton Mifflin. Boston. 616 pp.

## **BIRDS**

### Taxonomic Authority:

American Ornithologists' Union. 1998. *Check-list of North American birds*, 7th Edition. American Ornithologist's Union. Washington, D.C. 829 pp.

### For Additional Information:

Jacobs, R. and J.D. Wilson. 1997. *Missouri breeding bird atlas*. Missouri Department of Conservation. Jefferson City, Missouri. 430 pp.

National Geographic Society. 1987. *Field guide to the birds of North America*. Second edition. Washington, D.C. 464 pp.

**BIRDS (Cont.)**For Additional Information (Cont):

Robbins, M.B. and D.A. Esterla. 1992. Birds of Missouri: their distribution and abundance. University of Missouri Press. Columbia, Missouri. 399 pp.

**MAMMALS**Taxonomic Authority:

Hall, E.R. 1981. The mammals of North America, 2nd edition. John Wiley & Sons, New York, 1181+ pp.

Don E. Wilson & DeeAnn M. Reeder (editors). 2005. Mammal Species of the World. A Taxonomic and Geographic Reference (3rd ed), Johns Hopkins University Press, 2,142 pp.

For Additional Information:

Schwartz, C.W. and E.R. Schwartz. 2001. The wild mammals of Missouri, 2<sup>nd</sup> Revised edition. University of Missouri Press. Columbia, Missouri. 368 pp.

## FOR MORE INFORMATION

The Missouri Department of Conservation collects and manages information on the location and status of species of conservation concern throughout the state. The Natural Heritage Database is a repository for this information.

If you have information on the location or questions about the status of any element on this checklist, please write or call:

Heritage Coordinator  
Missouri Department of Conservation  
P.O. Box 180  
2901 W Truman Blvd  
Jefferson City, MO 65109  
(573) 522-4115

If you are requesting information about the location of any element on this checklist for the purposes of environmental review, please write:

Policy Coordination  
Missouri Department of Conservation  
P.O. Box 180  
Jefferson City, MO 65109

## WEBPAGE

This checklist is updated annually. The most current version is always available by contacting the Missouri Department of Conservation, Resource Science Division. *Checklist* information is also available on the Missouri Department of Conservation's website: <http://mdc.mo.gov/145>.

## CITATION

An appropriate citation for this edition of the *Checklist* is:

Missouri Natural Heritage Program. 2012. Missouri species and communities of conservation concern checklist. Missouri Department of Conservation. Jefferson City, Missouri. pp. 51.

**APPENDIX A**  
**BIRD SPECIES TRACKED IN HERITAGE AND THEIR CRITERIA FOR EORS**  
**Updated October 7, 2011**

| <b>Species (ranks)</b>  | <b>Regions</b>         | <b>Criteria (safe dates), comments</b> |
|---|------------------------|--|
| <b>Anseriformes (Ducks, geese, swans)</b>                       |                        |  |
| Trumpeter Swan (S1, G4)   | All (NE, NW)           | 1                                      |
| <b>Galliformes (chicken-like birds)</b>                         |                        |  |
| Ruffed Grouse (SU, G5)  | CE, OZ, SL, SE         | 1                                      |
| Greater Prairie-chicken (S1, G4)                                | SW, KC, NW, NE         | Anytime observed                       |
| <b>Pelecaniformes (pelicans, cormorants, darters)</b>           |                        |  |
| Anhinga (SX, G5)  | SE                     | 1                                      |
| <b>Ciconiiformes (herons, egrets, storks, ibises, vultures)</b> |                        |  |
| American Bittern (S1, G4)                                       | All                    | 1- extensive emergent marshes          |
| Least Bittern (S3, G5)  | All                    | 1,2 (5/25-8/1)                         |
| Great Egret (S3, G5)  | All (SE)               | 1                                      |
| Snowy Egret (S1, G5)  | SE                     | 1                                      |
| Little Blue Heron (S3, G5)                                      | SE, SL                 | 1                                      |
| Black-crowned Night-Heron (S3, G5)                              | All (SE)               | 1                                      |
| Black Vulture (S3, G5)  | OZ, SE                 | 1                                      |
| <b>Falconiformes (hawks, falcons, eagles, kites)</b>            |                        |  |
| Osprey (S2, G5)   | All (confirmed NE, SW) | 1- Any large open body of water        |
| Mississippi Kite (S3, G5)                                       | All (SE, SL, NE)       | 1- Expanding range                     |
| Bald Eagle (S3, G4)   | All                    | 1- Any large open body of water        |
| Northern Harrier (S2, G5)                                       | All (except OZ, SE)    | 1                                      |
| Sharp-shinned Hawk (S2, G5)                                     | All                    | 1                                      |
| Swallow-tailed Kite (SX, G5)                                    | SE                     | 1- Formerly SE, large rivers           |
| Swainson's Hawk (S2, G5)  | SW, KC                 | 1                                      |
| Peregrine Falcon (S1, G4)                                       | SL, KC                 | 1- Formerly along MO river bluffs      |
| <b>Gruiformes (rails, cranes)</b>                               |                        |  |
| Sandhill Crane (S1, G5)   | NE, NW, CE, SL         | 1                                      |
| Black Rail (S1, G4)   | All                    | Anytime observed, large marshes        |
| Yellow Rail (SU, G4)  | All                    | Anytime observed (migrant)             |
| King Rail (S1, G4G5)  | All (SE, SL, NE)       | 1,2 (5/30-7/31)                        |
| Virginia Rail (S2, G5)  | All                    | 1,2 (5/15-8/1)                         |
| Sora (S2, G5)   | All                    | 1,2 (5/30-7/31)                        |
| Common Moorhen (S2, G5)   | All (except OZ)        | 1,2 (5/30-8/31)                        |
| <b>Charadriiformes (gulls, terns, shorebirds)</b>               |                        |  |
| Interior Least Tern (S1, G4T2Q)                                 | SE                     | 1- Formerly along MS, MO Rivers        |
| Black Tern (SX, G4)   | NW                     | 1                                      |
| <b>Cuculiformes (cuckoos, roadrunners)</b>                      |                        |  |
| Greater Roadrunner (S3, G5)                                     | SW, OZ                 | Anytime observed                       |
| <b>Strigiformes (Owls)</b>                                      |                        |  |
| Barn Owl (S3, G5)   | All (SE)               | 1,2 (5/25-8/15)                        |
| Long-eared Owl (SU, G5)   | All                    | 1-Forests, dense thickets near water   |
| Short-eared Owl (S2, G5)  | SW, NW, NE, KC         | 1,2 (5/1-8/31)                         |
| Burrowing Owl (SX, G4)  | NW                     | 1                                      |

**Piciformes (Woodpeckers)**

|                                  |        |                  |
|----------------------------------|--------|------------------|
| Ivory-billed Woodpecker (SX, G1) | All    | Anytime observed |
| Red-cockaded Woodpecker (SX, G3) | OZ, SE | Anytime observed |

**Passeriformes (perching birds)**

|                                       |                         |                  |
|---------------------------------------|-------------------------|------------------|
| Least Flycatcher (SU, G5)             | NE, NW                  | 1,2 (5/27-7/7)   |
| Loggerhead Shrike (S2, G5)            | All (SW, KC, NW)        | 1,2 (4/20-7/20)  |
| Common Raven (SX, G5)                 | All                     | Anytime observed |
| Brown-headed Nuthatch (SX, G5)        | OZ, SE                  | Anytime observed |
| Brown Creeper (SU, G5)                | SL, NE, OZ              | 1,2 (5/15-9/15)  |
| Marsh Wren (S3, G5)                   | All (except SW, SE, OZ) | 1,2 (5/25-8/25)  |
| Bachman's Warbler (SX, GH)            | All                     | Anytime observed |
| Chestnut-sided Warbler (S3, G5)       | All                     | 1,2 (6/1-8/10)   |
| Black-throated Green Warbler (SU, G5) | SE                      | 1                |
| Cerulean Warbler (S2S3, G4)           | All (OZ)                | 1,2 (6/1-8/10)   |
| Swainson's Warbler (S2, G4)           | SE, OZ, SW              | 1,2 (5/25-8/15)  |
| Bachman's Sparrow (S1, G3)            | OZ, SW, SE              | 1,2 (6/1-8/15)   |
| Painted Bunting (S3, G5)              | SW, OZ                  | 1,2 (5/25-8/1)   |
| Yellow-headed Blackbird (S3, G5)      | NW (possible anywhere)  | 1                |
| Pine Siskin (SU, G5)                  | All                     | 1                |

**MDC Region abbreviations (Regions listed are those in which the species is most likely to be recorded).**

|                      |                        |
|----------------------|------------------------|
| <b>CE- Central</b>   | <b>KC- Kansas City</b> |
| <b>NE- Northeast</b> | <b>NW- Northwest</b>   |
| <b>OZ- Ozark</b>     | <b>SL- St. Louis</b>   |
| <b>SE- Southeast</b> | <b>SW- Southwest</b>   |

**Explanation of Criteria****1. Confirmed breeding. Evidenced one or more of the following:**

- Nest building (except wrens and woodpeckers)
- Nest with egg(s) or young (seen or heard)
- Used nest or eggshells
- Physiological evidence of breeding based upon bird in hand (e.g. brood patch)
- Distraction display or injury feigning
- Recently fledged young
- Adults entering or leaving nest site in circumstances indicating nesting
- Adult carrying fecal sac
- Adult carrying food

**2. Probable or possible breeding (valid only between safe dates)****Probable**

- Male and female seen together (not part of a flock)
- Bird holding territory
- Seven or more singing males detected in one visit
- Courtship or copulation
- Visiting probable nest site
- Agitated behavior or anxiety call (not provoked by observer)
- Nest building by wrens or woodpeckers

**Possible**

- Species heard or seen in breeding habitat



# PLANTS OF CONSERVATION CONCERN REPORTING FORM

## Complete relevant fields for which you have information

### HERITAGE BIOLOGIST AND LAB USE ONLY

EO Report Status (check one): New \_\_\_\_\_ Update **with** mapping \_\_\_\_\_ Update **without** mapping \_\_\_\_\_  
EO\_ID: \_\_\_\_\_ Federal Status: \_\_\_\_\_ State Status: \_\_\_\_\_ SRANK: \_\_\_\_\_  
Heritage mapper: \_\_\_\_\_ Heritage map QC'er: \_\_\_\_\_ Heritage Biologist: \_\_\_\_\_  
Heritage mapping date: \_\_\_\_\_ Heritage map QC date: \_\_\_\_\_ Heritage Biologist Date: \_\_\_\_\_

### ELEMENT IDENTIFICATION and LOCATION

Scientific Name: \_\_\_\_\_ Common Name: \_\_\_\_\_  
Survey Site Name: \_\_\_\_\_  
Directions to the survey site: \_\_\_\_\_  
County(ies): \_\_\_\_\_  
USGS Quadrangle name(s): \_\_\_\_\_  
Township: \_\_\_\_\_ Range: \_\_\_\_\_ Section: \_\_\_\_\_ Quarter Sections: \_\_\_\_\_  
GPS should be in NAD83, zone 15. If not, indicate: NAD \_\_\_\_\_ Zone \_\_\_\_\_  
UTM: Easting (X) \_\_\_\_\_ OR: Latitude (N) \_\_\_\_\_  
Northing (Y) \_\_\_\_\_ Longitude (W) \_\_\_\_\_  
Explanation of possible GPS unit inaccuracy: \_\_\_\_\_

### MAPPING

Attach a map with the species' location clearly marked in hard copy, digital, or shapefile format. No county maps, please.  
Person who marked the map (last name, first name): \_\_\_\_\_  
Locational Uncertainty (buffer radius): The mapped location is within \_\_\_\_\_ Meters OR \_\_\_\_\_ Feet OR \_\_\_\_\_ Miles

### ELEMENT OCCURRENCE SURVEY INFORMATION

Survey Date (yyyy-mm-dd): \_\_\_\_\_ Surveyor(s) (last name, first name): \_\_\_\_\_  
Abundance (actual and/or estimated number observed): \_\_\_\_\_  
Condition (plants sterile, in bud, flower or fruit, evidence of disease, predation, or exotics): \_\_\_\_\_  
Person hours searching for Element: \_\_\_\_\_  
Specimen or photograph taken (collector/photographer, collection #, year, acquisition number and repository): \_\_\_\_\_  
General Habitat Description: \_\_\_\_\_

### CONSERVATION INFORMATION

Managed Area Name(s): \_\_\_\_\_  
Is EO completely within boundaries of Managed Area(s)? Yes OR Partially  
Owner(s): \_\_\_\_\_  
Owner Comments (include address/phone number and other relevant comments): \_\_\_\_\_  
Management Comments (needs for management, protection, monitoring, and/or research): \_\_\_\_\_

General Comments (include any associated species and/or any other relevant information): \_\_\_\_\_

Form completed by (last name, first name): \_\_\_\_\_ Date: \_\_\_\_\_

Thank you for your assistance in helping maintain the Missouri Natural Heritage Program.  
Return to: Resource Science Division – Heritage Botanist, Missouri Department of Conservation,  
P.O. Box 180, Jefferson City, Missouri 65102. (573) 522-4115

### HERITAGE BIOLOGIST USE ONLY

EO Rank: \_\_\_\_\_ Origin Subrank: \_\_\_\_\_ EO Rank Comments: \_\_\_\_\_  
Reference(s) (include contact information for any new references): \_\_\_\_\_  
Version Author (last name, first name): \_\_\_\_\_

# ANIMALS OF CONSERVATION CONCERN REPORTING FORM

## Complete relevant fields for which you have information

### HERITAGE BIOLOGIST AND LAB USE ONLY

EO Report Status (check one): New \_\_\_\_\_ Update with mapping \_\_\_\_\_ Update without mapping \_\_\_\_\_  
EO\_ID: \_\_\_\_\_ Federal Status: \_\_\_\_\_ State Status: \_\_\_\_\_ SRANK: \_\_\_\_\_  
Heritage mapper: \_\_\_\_\_ Heritage map QC'er: \_\_\_\_\_ Heritage Biologist: \_\_\_\_\_  
Heritage mapping date: \_\_\_\_\_ Heritage map QC date: \_\_\_\_\_ Heritage Biologist Date: \_\_\_\_\_

### ELEMENT IDENTIFICATION and LOCATION

Scientific Name: \_\_\_\_\_ Common Name: \_\_\_\_\_  
Survey Site Name: \_\_\_\_\_  
Directions to the survey site: \_\_\_\_\_  
County(ies): \_\_\_\_\_  
USGS Quadrangle name(s): \_\_\_\_\_  
Township: \_\_\_\_\_ Range: \_\_\_\_\_ Section: \_\_\_\_\_ Quarter Sections: \_\_\_\_\_  
GPS should be in NAD83, zone 15. If not, indicate: NAD \_\_\_\_\_ Zone \_\_\_\_\_  
UTM: Easting (X) \_\_\_\_\_ OR: Latitude (N) \_\_\_\_\_  
Northing (Y) \_\_\_\_\_ Longitude (W) \_\_\_\_\_  
Explanation of possible GPS unit inaccuracy: \_\_\_\_\_

### MAPPING

Attach a map with the species' location clearly marked in hard copy, digital, or shapefile format. No county maps, please.  
Person who marked the map (last name, first name): \_\_\_\_\_  
Locational Uncertainty (buffer radius): The mapped location is within \_\_\_\_\_ Meters OR \_\_\_\_\_ Feet OR \_\_\_\_\_ Miles

### ELEMENT OCCURRENCE SURVEY INFORMATION

Survey Date (yyyy-mm-dd): \_\_\_\_\_ Surveyor(s) (last name, first name): \_\_\_\_\_  
Abundance (actual and/or estimated number observed): \_\_\_\_\_  
Condition (evidence of reproduction, disease, predation, injury, etc. For cave species, indicate hibernaculum, maternity, etc.): \_\_\_\_\_  
External Measurements: \_\_\_\_\_  
Person hours searching for Element: \_\_\_\_\_  
Sampling Methodology (traps, seining, call count, etc.): \_\_\_\_\_  
Specimen or photograph taken (collector/photographer, collection #, year, acquisition number and repository): \_\_\_\_\_  
General Habitat Description: \_\_\_\_\_

### CONSERVATION INFORMATION

Managed Area Name(s): \_\_\_\_\_  
Is EO completely within boundaries of Managed Area(s)? Yes OR Partially  
Owner(s): \_\_\_\_\_  
Owner Comments (include address/phone number and other relevant comments): \_\_\_\_\_  
Management Comments (needs for management, protection, monitoring, and/or research): \_\_\_\_\_

General Comments (include any associated species and/or any other relevant information): \_\_\_\_\_

Form completed by (last name, first name): \_\_\_\_\_ Date: \_\_\_\_\_

Thank you for your assistance in helping maintain the Missouri Natural Heritage Program.  
Return to: Resource Science Division – Heritage Zoologist, Missouri Department of Conservation,  
1110 S. College Ave., Columbia, Missouri 65201. (573) 882-9880

### HERITAGE BIOLOGIST USE ONLY

EO Rank: \_\_\_\_\_ Origin Subrank: \_\_\_\_\_ EO Rank Comments: \_\_\_\_\_  
Reference(s) (include contact information for any new references): \_\_\_\_\_  
Version Author (last name, first name): \_\_\_\_\_

# TERRESTRIAL NATURAL COMMUNITY REPORTING FORM

Complete relevant fields for which you have information

## HERITAGE BIOLOGIST AND LAB USE ONLY

EO Report Status (check one): New \_\_\_\_\_ Update with mapping \_\_\_\_\_ Update without mapping \_\_\_\_\_  
EO\_ID: \_\_\_\_\_ SRANK: \_\_\_\_\_ GELCODE \_\_\_\_\_ Gelcode Confidence Level (circle one): 1 2 3  
Heritage mapper: \_\_\_\_\_ Heritage map QC'er: \_\_\_\_\_ Heritage Biologist: \_\_\_\_\_  
Heritage mapping date: \_\_\_\_\_ Heritage map QC date: \_\_\_\_\_ Heritage Biologist Date: \_\_\_\_\_

## ELEMENT IDENTIFICATION and LOCATION

Terrestrial Natural Community Name/Type: \_\_\_\_\_  
Survey Site Name: \_\_\_\_\_  
Directions to the survey site: \_\_\_\_\_  
County(ies): \_\_\_\_\_  
USGS Quadrangle name(s): \_\_\_\_\_  
Township: \_\_\_\_\_ Range: \_\_\_\_\_ Section: \_\_\_\_\_ Quarter Sections: \_\_\_\_\_  
GPS should be in NAD83, zone 15. If not, indicate: NAD \_\_\_\_\_ Zone \_\_\_\_\_  
UTM: Easting (X) \_\_\_\_\_ OR: Latitude (N) \_\_\_\_\_  
Northing (Y) \_\_\_\_\_ Longitude (W) \_\_\_\_\_  
Explanation of possible GPS unit inaccuracy: \_\_\_\_\_

## MAPPING

Attach a map with the natural comm. location clearly marked in hard copy, digital, or shapefile format. No county maps, please.  
Person who marked the map (last name, first name): \_\_\_\_\_  
Locational Uncertainty (buffer radius): The mapped location is within \_\_\_\_\_ Meters OR \_\_\_\_\_ Feet OR \_\_\_\_\_ Miles

## ELEMENT OCCURRENCE SURVEY INFORMATION

Survey Date (yyyy-mm-dd): \_\_\_\_\_ Surveyor(s) (last name, first name): \_\_\_\_\_  
Plant species composition (5-10 dominant or characteristic plant taxa by scientific name): \_\_\_\_\_  
General Habitat Description (describe substrate, topography and vegetation structure including acreage. E.g., "Glade system with three openings of 1, 5, and 10 acres." If part of a natural community complex, describe what percentage of the mapped polygon is made up of this EO type. E.g., "30% of a complex with wet-prairie and freshwater marsh."): \_\_\_\_\_  
Community Significance (circle one): Significant Exceptional Notable  
EO Rank: \_\_\_\_\_ Origin Subrank: \_\_\_\_\_ EO Rank Comments (describe ecological integrity; i.e., resemblance to presettlement condition, lack of exotic species, presence of conservative species, floristic quality index values, etc.): \_\_\_\_\_

## CONSERVATION INFORMATION

Managed Area Name(s): \_\_\_\_\_  
Is EO completely within boundaries of Managed Area(s)? Yes OR Partially  
Owner(s): \_\_\_\_\_  
Owner Comments (include address/phone number and other relevant comments): \_\_\_\_\_  
Management Comments (needs for management, protection, monitoring, and/or research): \_\_\_\_\_

General Comments (include any associated species and/or any other relevant information): \_\_\_\_\_  
Form completed by (last name, first name): \_\_\_\_\_ Date: \_\_\_\_\_

Thank you for your assistance in helping maintain the Missouri Natural Heritage Program.

Return to: Wildlife Division – Heritage Ecologist, Missouri Department of Conservation,  
P.O. Box 180, Jefferson City, Missouri 65102. (573) 522-4115

## HERITAGE BIOLOGIST USE ONLY

Reference(s) (include contact information for any new references): \_\_\_\_\_  
Version Author (last name, first name): \_\_\_\_\_

# AQUATIC NATURAL COMMUNITY REPORTING FORM

Complete relevant fields for which you have information

## HERITAGE BIOLOGIST AND LAB USE ONLY

EO Report Status (check one): New \_\_\_\_\_ Update with mapping \_\_\_\_\_ Update without mapping \_\_\_\_\_

EO ID: \_\_\_\_\_ SRANK: \_\_\_\_\_

Heritage mapper: \_\_\_\_\_ Heritage map QC'er: \_\_\_\_\_ Heritage Biologist: \_\_\_\_\_

Heritage mapping date: \_\_\_\_\_ Heritage map QC date: \_\_\_\_\_ Heritage Biologist Date: \_\_\_\_\_

## ELEMENT IDENTIFICATION and LOCATION

Aquatic Natural Community Name/Type: \_\_\_\_\_

Survey Site Name: \_\_\_\_\_

Directions to the survey site: \_\_\_\_\_

County(ies): \_\_\_\_\_

USGS Quadrangle name(s): \_\_\_\_\_

Township: \_\_\_\_\_ Range: \_\_\_\_\_ Section: \_\_\_\_\_ Quarter Sections: \_\_\_\_\_

GPS should be in NAD83, zone 15. If not, indicate: NAD \_\_\_\_\_ Zone \_\_\_\_\_

UTM: Easting (X) \_\_\_\_\_ OR: Latitude (N) \_\_\_\_\_

Northing (Y) \_\_\_\_\_ Longitude (W) \_\_\_\_\_

Explanation of possible GPS unit inaccuracy: \_\_\_\_\_

## MAPPING

Attach a map with the natural comm. location clearly marked in hard copy, digital, or shapefile format. No county maps, please.

Person who marked the map (last name, first name): \_\_\_\_\_

## ELEMENT OCCURRENCE SURVEY INFORMATION

Survey Date (yyyy-mm-dd): \_\_\_\_\_ Surveyor(s) (last name, first name): \_\_\_\_\_

Aquatic assemblage (5-10 dominant or characteristic fish and/or aquatic invertebrate taxa by scientific name): \_\_\_\_\_

General Habitat Description (describe stream order, miles to headwaters, riparian corridor condition, composition of riffles and pools, and other physical factors): \_\_\_\_\_

Community Significance (circle one): Significant Exceptional Notable

EO Rank: \_\_\_\_\_ Origin Subrank: \_\_\_\_\_ EO Rank Comments (describe ecological integrity; i.e., resemblance to presettlement condition, lack of exotic species, presence of conservative species, biologic integrity index values, etc.): \_\_\_\_\_

## CONSERVATION INFORMATION

Managed Area Name(s): \_\_\_\_\_

Is EO completely within boundaries of Managed Area(s)?: Yes OR Partially

Owner(s): \_\_\_\_\_

Owner Comments (include address/phone number and other relevant comments): \_\_\_\_\_

Management Comments (needs for management, protection, monitoring, and/or research; include RAM monitoring site number): \_\_\_\_\_

General Comments (include any associated species and/or any other relevant information): \_\_\_\_\_

Form completed by (last name, first name): \_\_\_\_\_ Date: \_\_\_\_\_

Thank you for your assistance in helping maintain the Missouri Natural Heritage Program.  
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P.O. Box 180, Jefferson City, Missouri 65102. (573) 522-4115

## HERITAGE BIOLOGIST USE ONLY

Reference(s) (include contact information for any new references): \_\_\_\_\_

Version Author (last name, first name): \_\_\_\_\_